TC-818M

SERVICE MANUAL

US Model
AEP Model
UK Model

SONY
AUTO REVERSE
AUTO REVERSE
A
B

TC-818M is the cassette deck section in MHC-3300/3300CD.

Model Name Using Similar Mechanism	TC-WR808M
Tape Transport Mechanism Type	Deck A TCM-170RA1
	Deck B TCM-170RB7

SPECIFICATIONS

Recording system 4-track 2-channel stereo

Frequency response

Used cassette	
TYPE I (Sony HF-S)	40-13,000 Hz (±3 dB)
TYPE II (Sony UCX)	40-14,000 Hz (±3 dB)

Wow and flutter	0.1% WRMS ± 0.2% (DIN)

Dimensions/Weight

Approx. 225 x 120 x 230 mm ($8^{7}/_{8}$ x $4^{3}/_{4}$ x $9^{1}/_{8}$ inches)	Approx. 2.6kg (5 lb 12 oz) net

* incl. projecting parts and controls

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol ▯▯ are trademarks of Dolby Laboratories Licensing Corporation.

MODEL IDENTIFICATION

US, AEP, UK model

SONY® MODEL NO. TC-818M
STEREO CASSETTE DECK
SERIAL NO.
MADE IN JAPAN

West Germany model

SONY® MODEL NO. TC-818M
STEREO CASSETTE DECK
SYSTEM MHC-3300

SERIAL NO.
MADE IN JAPAN

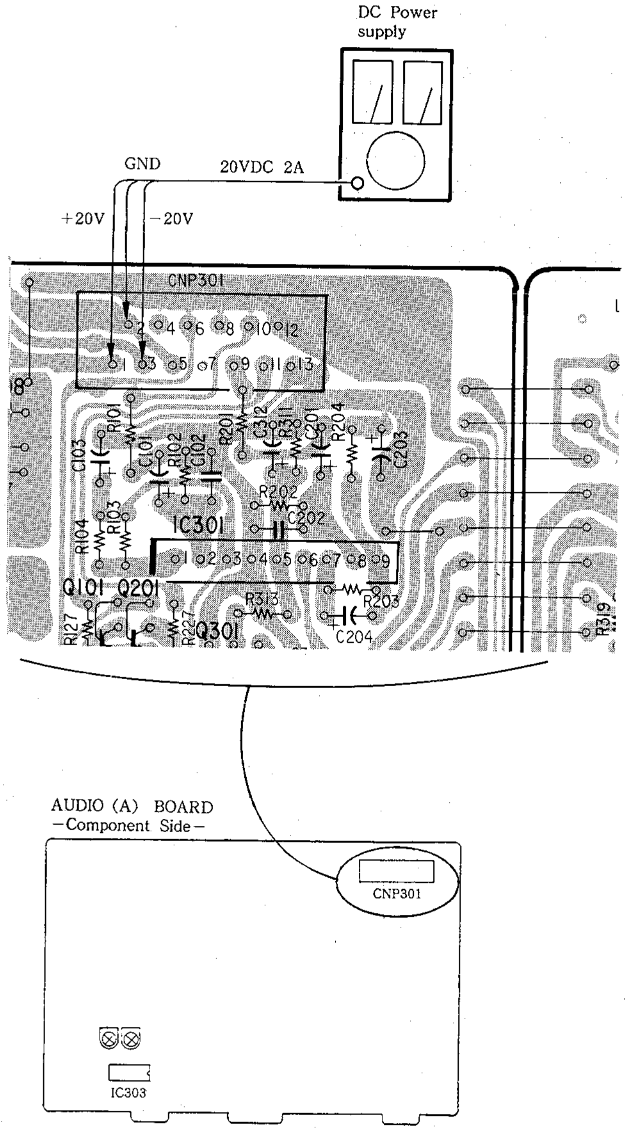
MICROFILM

STEREO CASSETTE DECK

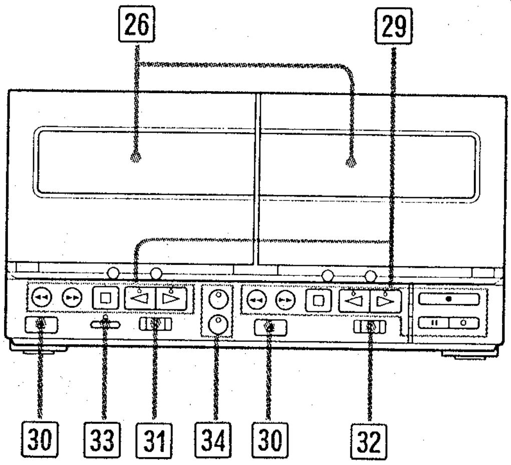
SONY®

REPAIRING PRECAUTION

[To apply B+ voltage]
Thepower of this unit is fed from amlifier.
Because of this, connect the DC Power supply as illustrated below when this unit alone operates.


DC Power supply
GND
20VDC 2A
+20V
−20V
CNP301
IC301
Q101
Q201
Q301
AUDIO (A) BOARD
—Component Side—
CNP301
IC303

PARTS IDENTIFICATION


26
29
30
33
31
34
30
32

- [26] Cassette holder
- [29] Tape operation buttons
  - ◀◀ ▶▶:Fast winding
  - ▷:Forward play
  - ◁:Reverse play
  - □:Stop
  - ❚❚:Pause
  - ○:Record muting
  - ● : Record
- [30] ⏏ EJECT button
- [31] DIRECTION MODE selector
- [32] DOLBY NR switch
- [33] AMS/BLANK SKIP button
- [34] DUBBING SPEED selectors

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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Section *Title* *Page*

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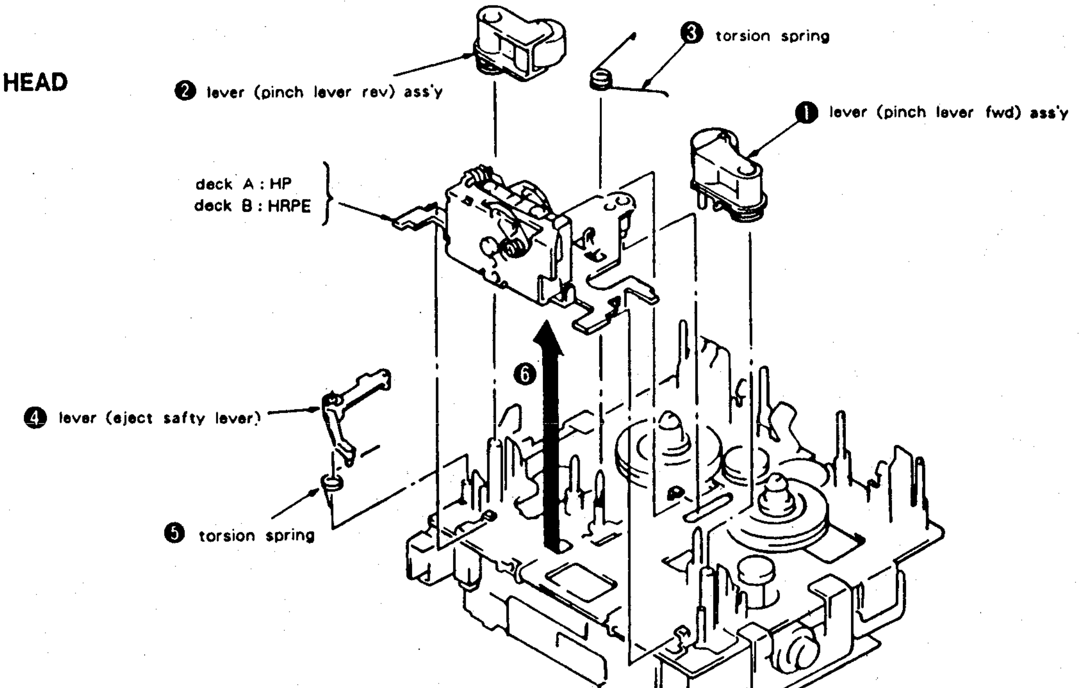
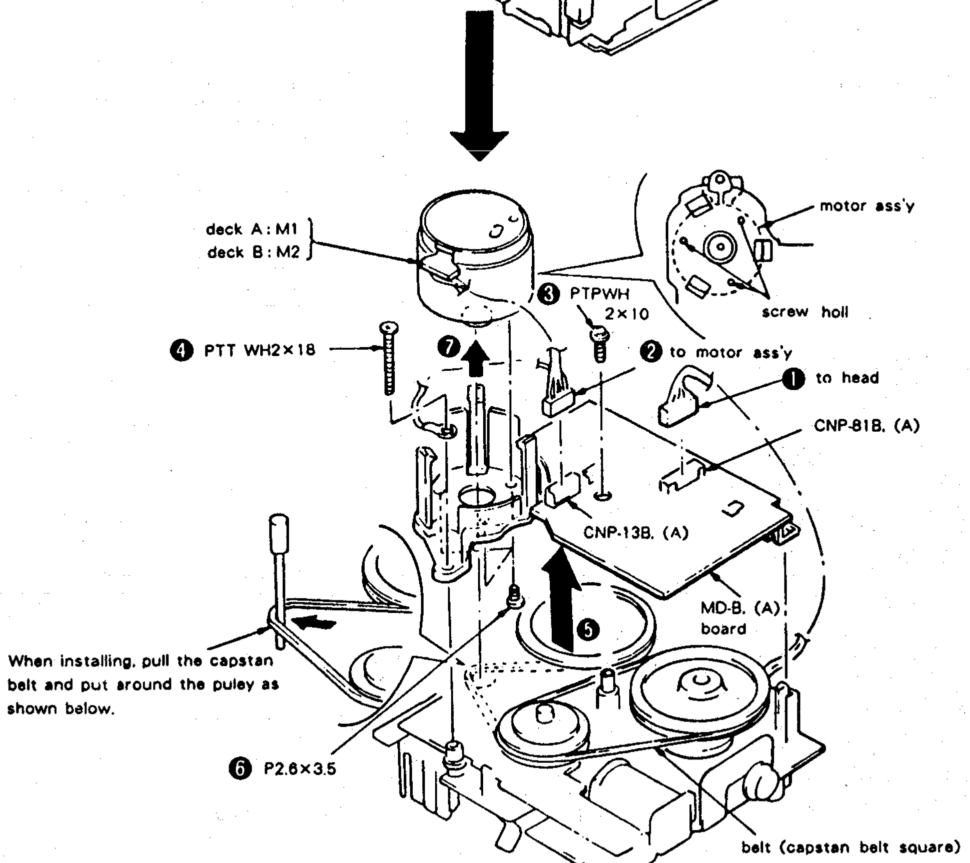
SECTION 1
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

HEAD


❸ torsion spring
❷ lever (pinch lever rev) ass'y
❶ lever (pinch lever fwd) ass'y
deck A : HP
deck B : HRPE
❻
❹ lever (eject safty lever)
❺ torsion spring

MOTOR


deck A : M1
deck B : M2
motor ass'y
screw holl
❸ PTPWH 2×10
❹ PTT WH2×18
❼
❷ to motor ass'y
❶ to head
CNP-81B. (A)
CNP-13B. (A)
MD-B. (A) board
❺
❻ P2.6×3.5
belt (capstan belt square)

When installing, pull the capstan belt and put around the puley as shown below.

SECTION 2
ADJUSTMENTS

2-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab :

record/playback head	pinch roller
erase head	rubber belts
capstan	idler

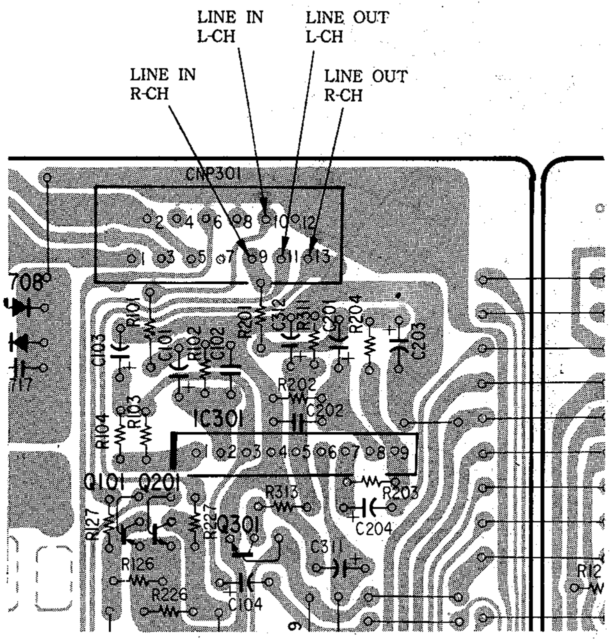
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the perts adjusted.

Torque Measurement

Torque	Torque Meter	Meter Reading
FWD	CQ-102C	27 to 75g • cm (0.378 to 1.05 oz • inch)
FWD Back tension	CQ-102C	1 to 10g • cm (0.014 to 0.14 oz • inch)
REV	CQ-102RC	27 to 75g • cm (0.378 to 1.05 oz • inch)
REV Back Tension	CQ-102RC	1 to 10g • cm (0.014 to 0.14 oz • inch)
FF, REW	CQ-201B	95 to 165g • cm (1.33 to 2.31 oz • inch)

- **Location of LINE IN/OUT**

AUDIO Board (B) CNP301


LINE IN
L-CH
LINE OUT
L-CH
LINE IN
R-CH
LINE OUT
R-CH
CNP301
IC301
Q101
Q201
Q301
R101
R102
R103
R104
R126
R127
R201
R202
R203
R204
R226
R227
R313
C101
C102
C103
C104
C201
C202
C203
C204
C311
C312
708
717

2-2. ELECTRICAL ADJUSTMENTS

Note :The adjustment should be performed in the order given in the service manual.
The adjustments should be performed for both L-CH and R-CH.

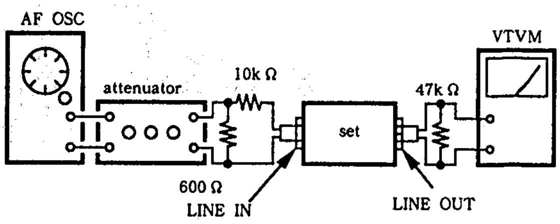
- Switches and controls should be set as follows unless otherwise specified.

DOLBY NR switch : OFF
TAPE SELECT switch : TYPE I
DIRECTION MODE switch : ⇄

- Standard Record :

Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.

—Record Mode—


AF OSC
attenuator
10k Ω
600 Ω
LINE IN
set
47k Ω
VTVM
LINE OUT

Standard Input Level

	LINE IN
source impedance	10k Ω
input level	0.25V (−10dB)

Standard Output Level

	LINE OUT
load impedance	47k Ω
output level	0.44V (−5dB)

- Test tape

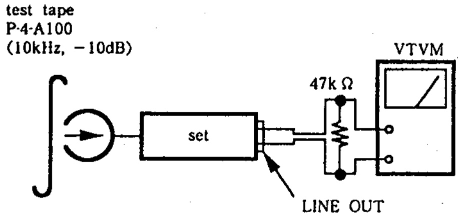
Type	Signal	Used for
P-4-A100	10kHz, −10dB	Azimuth Adjustment
P-4-L300	315Hz, 0dB	PB LEVEL Adjustment
WS-48B	3kHz, 0dB	Tape Speed Adjustment

Record/Playback Head Azimuth Adjustment

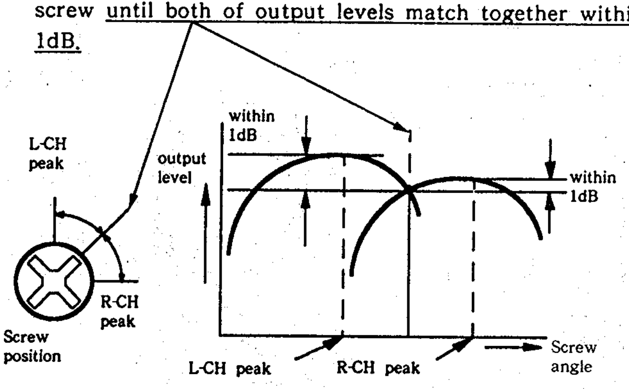
DECK A **DECK B**

Procedure :

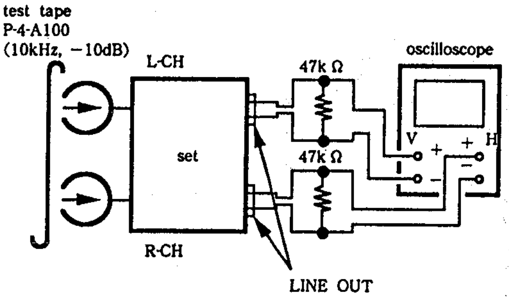
1. Mode : FWD playback

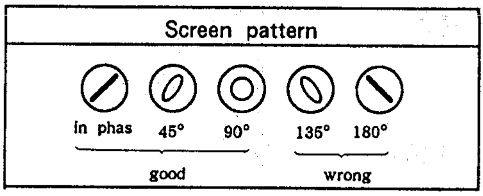

test tape
P-4-A100
(10kHz, −10dB)
VTVM
47k Ω
set
LINE OUT

2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.


L-CH peak
R-CH peak
Screw position
output level
within 1dB
within 1dB
L-CH peak
R-CH peak
Screw angle

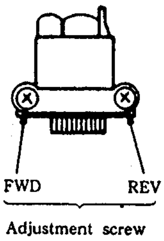
3. Phase Check
   Mode : playback

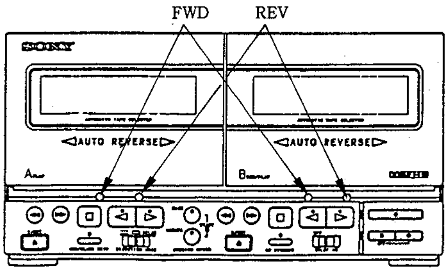

test tape
P-4-A100
(10kHz, −10dB)
L-CH
R-CH
set
47k Ω
47k Ω
oscilloscope
V
H
+
−
LINE OUT


Screen pattern
In phas
45°
90°
135°
180°
good
wrong

4. Set in the REV mode and repect the step 1-3.
5. After the adjustment, lock the screws with locking compound.

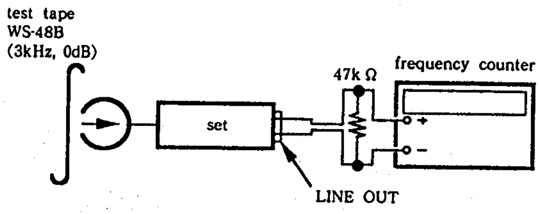
Adjustment Location : Record/Playback head
(Adjustable without disassembly.)


FWD
REV
Adjustment screw


FWD
REV
SONY
AUTO REVERSE
AUTO REVERSE
A
B

Tape Speed Adjustment DECK A DECK B

Procedure :
Mode : FWD playback


test tape
WS-48B
(3kHz, 0dB)
set
47k Ω
frequency counter
+
−
LINE OUT

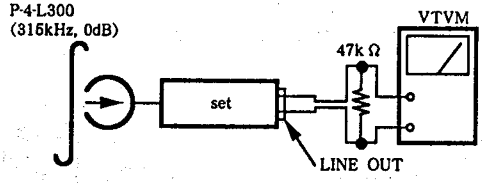
Perform high speed adjustment before normal speed adjustment.
Connect TP1 to ground with jumper wire and continue to press HIGH SPEED DUBING switch : High speed playback. After the high speed adjustment, remove jumper wire of TP1.
Play back the test tape WS-48B and ajust to meet the specifications below.

speed	deck	Adjustment part	variable resistor of motor	test pin CN811	frequency countor reading
high	A	M11A	(H)	short	5,960±30
	B	M11B	(H)		
normal	A	M11A	(L)	open	2,980±15
	B	M11B	(L)		

Frequency difference between the beginning and the end of the tape should be within 3%.
Frequency difference between deck A and deck B the beginning of the tape should be within 1.5%.

Adjustment Location :
deck A : motor (M11A) rear side
deck B : motor (M11B) rear side

Playback Level Adjustment DECK A DECK B
Procedure :
Mode : playback
Connect TP1 to ground.


test tape
P-4-L300
(315kHz, 0dB)
set
47k Ω
VTVM
LINE OUT

Adjust deck A : RV41A(L-CH), RV61A(R-CH) and deck B : RV41B(L-CH) , RV61B(R-CH) so that the reading on VTVM meets the specification below.

LINE OUT LEVEL : −10±0.8dB
Level difference between channels : less than 0.5dB
Check that the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.

Adjustment Location : MD board

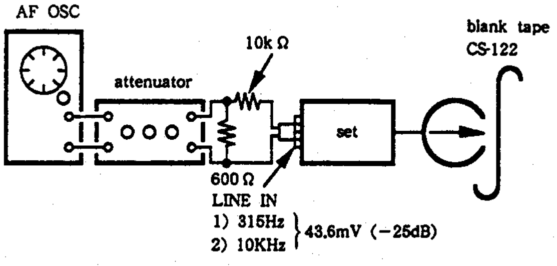
Record Bias Adjustment DECK B

Setting :

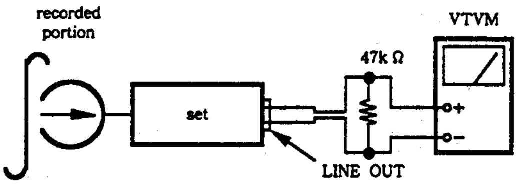
REC LEVEL control : standard record (See page 4.)
Connect TP1 to ground.

Procedure :

1. Mode : record


AF OSC
attenuator
10k Ω
600 Ω
LINE IN
1) 315Hz
2) 10KHz
43.6mV (−25dB)
set
blank tape
CS-122

2. Mode : playback


recorded portion
set
47k Ω
LINE OUT
VTVM
+
−

Confirm that the 10kHz playback output is 0±0.5dB relative to the 315Hz output. If necessary, adjust RV42 (L-CH), RV62 (R-CH) and repeat the steps given above.
After the ajustment remove jumper wire of TP1.

Adjustment Location : MD B board (US, Canadian model)
HX PRO board (AEP, UK model)

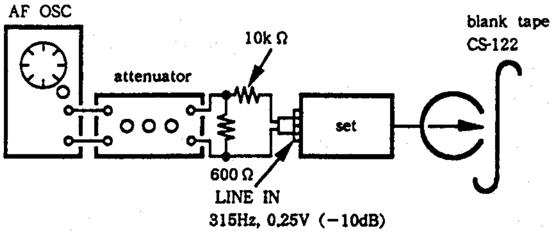
Record Level Adjustment DECK B

Setting :

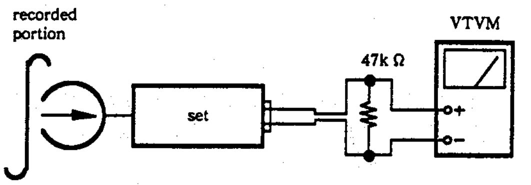
REC LEVEL control : standard record (See page 4.)
Connect TP1 to ground.

Procedure :

1. Mode : record


AF OSC
attenuator
10k Ω
600 Ω
LINE IN
315Hz, 0.25V (−10dB)
set
blank tape
CS-122

2. Mode : playback

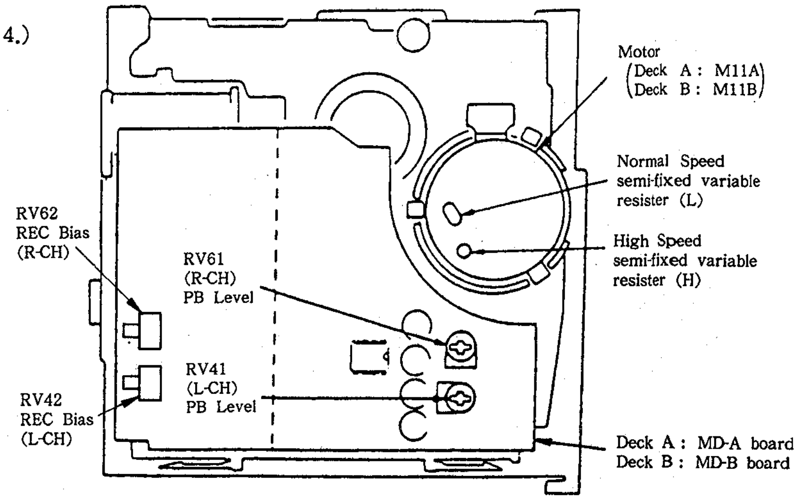

recorded portion
set
47k Ω
VTVM
+
−

3. Play back the signal recorded in step 1.
Confirm that the signal level is within the specification below. If necessary, adjust RV101 (L-CH), RV201 (R-CH) and repeat the step1-3.
4. After the adjustment, remove jumper wire of TP1.

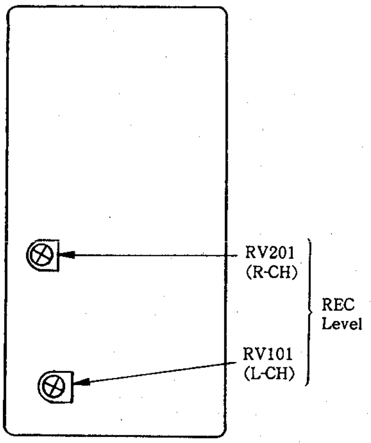
LINE OUT level : −8dB±0.5dB

Adjustment Location : audio (B) board

—Adjusting Parts Location Diagram—


Motor
Deck A : M11A
Deck B : M11B
Normal Speed semi-fixed variable resister (L)
High Speed semi-fixed variable resister (H)
RV62
REC Bias
(R-CH)
RV61
(R-CH)
PB Level
RV41
(L-CH)
PB Level
RV42
REC Bias
(L-CH)
Deck A : MD-A board
Deck B : MD-B board

AUDIO (B) BOARD
—Component Side—


RV201
(R-CH)
RV101
(L-CH)
REC Level

SECTION 3
DIAGRAMS

3-1. IC801 M50964-212SP PIN FUNCTIONS

<table>
<tr><th>PIN No.</th><th>PIN NAME</th><th>I/O</th><th>SIGNAL NAME</th><th>FUNCTION</th></tr>
<tr><td>1</td><td>Vcc</td><td></td><td>Vcc</td><td>POWER 5 ±0.5 V</td></tr>
<tr><td>2</td><td>AVSS</td><td></td><td>AVSS</td><td>Analogue system GND</td></tr>
<tr><td>3</td><td>VREF</td><td>I</td><td>VREF</td><td>Analogue system reference voltage input</td></tr>
<tr><td>4</td><td>D-A</td><td>O</td><td>D-A</td><td>D/A conversion output (Not used : OPEN)</td></tr>
<tr><td>5</td><td>PWM</td><td>O</td><td>PWM</td><td>PWM output (Not used : GND)</td></tr>
<tr><td>6</td><td>P63</td><td>O</td><td>$\overline{\text{AMS}}$</td><td>AMS LED indication output</td></tr>
<tr><td>7</td><td>P62</td><td>O</td><td>$\overline{\text{A FWD}}$</td><td>Deck A FWD LED output</td></tr>
<tr><td>8</td><td>P61</td><td>O</td><td>$\overline{\text{BIAS IV}}$</td><td>TYPE IV bias oscillation output</td></tr>
<tr><td>9</td><td>P60</td><td>O</td><td>$\overline{\text{BIAS II}}$</td><td>TYPE II bias oscillation output</td></tr>
<tr><td>10</td><td>P47</td><td>O</td><td>$\overline{\text{A REV}}$</td><td>Deck A RVS LED output</td></tr>
<tr><td>11</td><td>P46</td><td>O</td><td>$\overline{\text{A REV}}$</td><td>Deck A RVS LED output</td></tr>
<tr><td>12</td><td>AN5</td><td>I</td><td>B HALF</td><td>Deck B Record prevention claw A, B detection input (Analogue)
<table>
<tr><td>Voltage (V)</td><td>1 V</td><td>1.9 V</td><td>2.8 V</td><td>3.9 V</td><td>5 V</td></tr>
<tr><td>Half</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>OFF</td></tr>
<tr><td>Claw A</td><td>OFF</td><td>ON</td><td>OFF</td><td>ON</td><td>OFF</td></tr>
<tr><td>Claw B</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td></tr>
</table></td></tr>
<tr><td>13</td><td>AN4</td><td>I</td><td>KEY3</td><td>KEY input</td></tr>
<tr><td>14</td><td>AN3</td><td>I</td><td>KEY2</td><td rowspan="2">
<table>
<tr><td>Voltage (V)</td><td>0</td><td>0.3</td><td>0.7</td><td>1.2</td><td>1.7</td><td>2.3</td><td>2.8</td><td>3.4</td><td>4.0</td><td>4.5</td><td>5.0</td></tr>
<tr><td>KEY1</td><td>B■</td><td>B❚❚</td><td>B▶</td><td>B◀</td><td>B○</td><td>A◀◀</td><td>A▶▶</td><td></td><td>□□ B</td><td>□□ C</td><td>OFF</td></tr>
<tr><td>KEY2</td><td>A■</td><td>A❚❚</td><td>A▶</td><td>A◀</td><td></td><td>B◀◀</td><td>B▶▶</td><td>B●</td><td>⟲</td><td>RELAY</td><td>OFF</td></tr>
<tr><td>KEY3</td><td>AMS</td><td></td><td>H DUB</td><td>N DUB</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table></td></tr>
<tr><td>15</td><td>AN2</td><td>I</td><td>KEY1</td></tr>
<tr><td>16</td><td>P41</td><td>O</td><td>$\overline{\text{B FWD}}$</td><td>Deck B FWD LED output</td></tr>
<tr><td>17</td><td>P40</td><td>O</td><td>$\overline{\text{B REV}}$</td><td>Deck B RVS LED output</td></tr>
<tr><td>18</td><td>P37</td><td>O</td><td>$\overline{\text{A FWD}}$</td><td>Deck A FWD LED output</td></tr>
<tr><td>19</td><td>P36</td><td>O</td><td>$\overline{\text{B PAUSE}}$</td><td>Deck B PAUSE LED output</td></tr>
<tr><td>20</td><td>P35</td><td>O</td><td>$\overline{\text{B REC}}$</td><td>Deck B REC LED output</td></tr>
<tr><td>21</td><td>P34</td><td>O</td><td>DOLBY $\overline{\text{B}}$/C</td><td>Dolby $\overline{\text{B}}$/C output</td></tr>
<tr><td>22</td><td>P33</td><td>O</td><td>DOLBY $\overline{\text{ON}}$/OFF</td><td>Dolby $\overline{\text{ON}}$/OFF output</td></tr>
<tr><td>23</td><td>P32</td><td>I</td><td>SIRCS</td><td>SIRCS input or AUDIO BUS reverse input</td></tr>
<tr><td>24</td><td>P31</td><td>O</td><td>$\overline{\text{70}}$/120</td><td>Playback EQ output for playing deck</td></tr>
<tr><td>25</td><td>P30</td><td>O</td><td>AUB OUT</td><td>AUDIO BUS output</td></tr>
<tr><td>26</td><td>INTI</td><td>I</td><td>AUB IN</td><td>AUDIO BUS normal input</td></tr>
<tr><td>27</td><td>CNVSS</td><td></td><td>CNVSS</td><td>GND</td></tr>
<tr><td>28</td><td>$\overline{\text{RESET}}$</td><td>I</td><td>$\overline{\text{RESET}}$</td><td>Microcomputer reset input</td></tr>
<tr><td>29</td><td>XIN</td><td>I</td><td>XIN</td><td>Clock input (4 MHz)</td></tr>
<tr><td>30</td><td>XO</td><td>O</td><td>XO</td><td>Clock output (4 MHz)</td></tr>
<tr><td>31</td><td>Φ</td><td>O</td><td>Φ</td><td>(Not used : OPEN)</td></tr>
<tr><td>32</td><td>Vss</td><td></td><td>Vss</td><td>GND</td></tr>
<tr><td>33</td><td>P57</td><td>I</td><td>$\overline{\text{TEST}}$</td><td>Electrical adjusting test mode setting</td></tr>
<tr><td>34</td><td>P56</td><td>I</td><td>TYPE IV</td><td>TYPE IV switch input</td></tr>
<tr><td>35</td><td>P55</td><td>I</td><td>B70/$\overline{\text{120}}$</td><td>Deck B TYPE II switch input</td></tr>
<tr><td>36</td><td>P54</td><td>I</td><td>B SHUT</td><td>Deck B Reel table signal input</td></tr>
<tr><td>37</td><td>P53</td><td>I</td><td>A70/$\overline{\text{120}}$</td><td>Deck A TYPE II switch input</td></tr>
<tr><td>38</td><td>P52</td><td>I</td><td>A SHUT</td><td>Deck B Reel table signal input</td></tr>
<tr><td>39</td><td>P51</td><td>I</td><td>$\overline{\text{A HALF}}$</td><td>Deck A Half switch input</td></tr>
</table>

PIN No.	PIN NAME	I/O	SIGNAL NAME	FUNCTION
40	P50	I	AMSIN	AMS signal input
41	P17	O	$\overline{\text{MMUTE}}$	Meter mute output
42	P16	O	$\overline{\text{LMUTE}}$	Line mute output
43	P15	O	$\overline{\text{PASS}}$	PASS AMP change output
44	P14	O	$\overline{\text{REC}}$/PB	Dolby IC REC/PB select output
45	P13	O	$\overline{\text{AMS}}$/BS	AMS AMP characteristics change output
46	P12	O	AMS A/$\overline{\text{B}}$	AMS AMP input Deck A/B select output
47	P11	O	SEL A/$\overline{\text{B}}$	Dolby IC PB input Deck A/B select output
48	P10	O	$\overline{\text{BIAS I}}$	TYPE I bias oscillation output
49	P07	O	$\overline{\text{RELAY}}$	REC/PB change relay output
50	P06	O	$\overline{\text{PM B}}$	Deck B plunger hold output
51	P05	O	$\overline{\text{KICK B}}$	Deck B plunger kick output
52	P04	O	$\overline{\text{PM A}}$	Deck A plunger hold output
53	P03	O	$\overline{\text{KICK A}}$	Deck A plunger kick output
54	P02	O	B H/$\overline{\text{L}}$	Deck B capstan motor speed select
55	P01	O	A H/$\overline{\text{L}}$	Deck A capstan motor speed select
56	P00	O	M $\overline{\text{ON}}$/OFF	Capstan motor $\overline{\text{ON}}$/OFF
57	P27	O	REC MUTE	REC MUTE output
58	P26	O	B SCHMITT	Deck B reel table schmitt output
59	P25	O	A SCHMITT	Deck A reel table schmitt output
60	P24	O	$\overline{\text{HDUB}}$	High Speed Dubbing LED output
61	P23	O	$\overline{\text{NDUB}}$	Normal Speed Dubbing LED output
62	P22	O	$\overline{\text{CD DUB}}$	Auto CD Synchro LED output
63	P21	O	$\overline{\text{A PAUSE}}$	Deck A PAUSE LED output
64	P20	O	$\overline{\text{SIRCS}}$/AUB	SIRCS/AUDIO BUS mode select

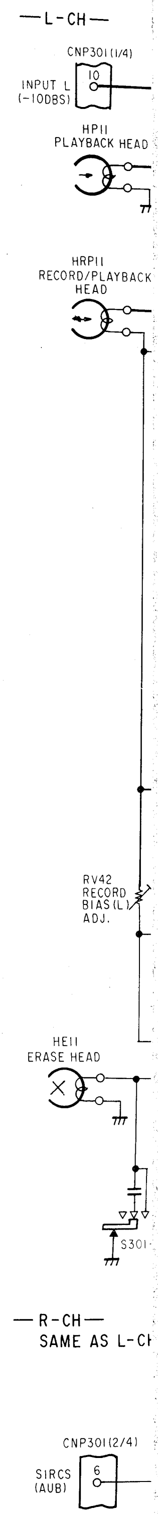
[TEST MODE]

When making pin ㉝ low (connect TP1 to ground with jumper wire), following function operates.

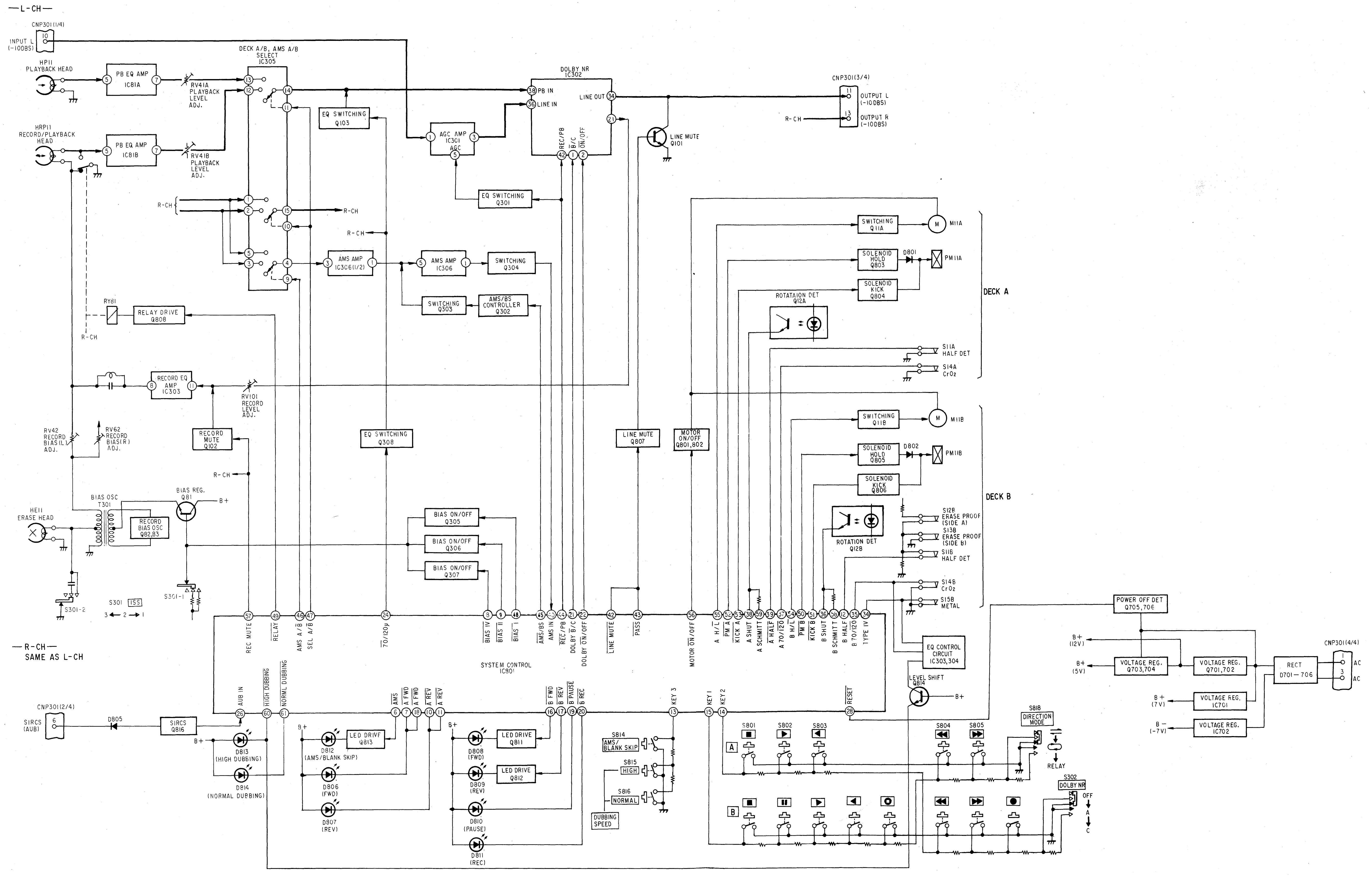
1. Source monitor
   Release the line mute while recording.
2. High speed playback
   On recording, while pressing HIGH SPEED (DUBBING) button, high speed playback operates.
3. Record memory stop
   Using DIRECTION MODE switch ⇆, returns to the recording start point and stops or plays.
4. LED indication of slide switch
   When making Deck B pause, LED indicates the positions of DIRECTION MODE switch.

Switch	Position	LED
DIRECTION MODE	⇆	Deck A ◀
	⟲	Deck A PLAY
	RELAY	Deck A ▶
MODE	NORM	Deck B ◀
	FADE	Deck B PLAY
	ERASE	Deck B ▶

3-2. BLOC



3-2. BLOCK DIAGRAM


—L-CH—
CNP301(1/4)
INPUT L (-10DBS)
HP11 PLAYBACK HEAD
PB EQ AMP IC81A
RV41A PLAYBACK LEVEL ADJ.
HRP11 RECORD/PLAYBACK HEAD
PB EQ AMP IC81B
RV41B PLAYBACK LEVEL ADJ.
DECK A/B, AMS A/B SELECT IC305
EQ SWITCHING Q103
AGC AMP IC301 AGC
DOLBY NR IC302
PB IN
LINE IN
LINE OUT
REC/PB
B/C
ON/OFF
LINE MUTE Q101
CNP301(3/4)
OUTPUT L (-10DBS)
OUTPUT R (-10DBS)
R-CH
EQ SWITCHING Q301
AMS AMP IC306(1/2)
AMS AMP IC306
SWITCHING Q304
SWITCHING Q303
AMS/BS CONTROLLER Q302
RY81
RELAY DRIVE Q808
RECORD EQ AMP IC303
RV101 RECORD LEVEL ADJ.
RV42 RECORD BIAS(L) ADJ.
RV62 RECORD BIAS(R) ADJ.
RECORD MUTE Q102
EQ SWITCHING Q308
LINE MUTE Q807
MOTOR ON/OFF Q801,802
HE11 ERASE HEAD
BIAS OSC T301
RECORD BIAS OSC Q82,83
BIAS REG. Q81
B+
BIAS ON/OFF Q305
BIAS ON/OFF Q306
BIAS ON/OFF Q307
S301-2
S301 ISS
3 ◀— 2 —▶ 1
S301-1
SWITCHING Q11A
M M11A
SOLENOID HOLD Q803
D801
PM11A
SOLENOID KICK Q804
ROTATAION DET Q12A
S11A HALF DET
S14A CrO2
DECK A
SWITCHING Q11B
M M11B
SOLENOID HOLD Q805
D802
PM11B
SOLENOID KICK Q806
ROTATION DET Q12B
S12B ERASE PROOF (SIDE A)
S13B ERASE PROOF (SIDE B)
S11B HALF DET
S14B CrO2
S15B METAL
DECK B
REC MUTE
RELAY
AMS A/B
SEL A/B
70/120μ
BIAS IV
BIAS II
BIAS I
AMS/BS
AMS IN
REC/PB
DOLBY B/C
DOLBY ON/OFF
LINE MUTE
PASS
MOTOR ON/OFF
A H/L
PM A
KICK A
A SHUT
A SCHMITT
A HALF
A 70/120
B H/L
PM B
KICK B
B SHUT
B SCHMITT
B HALF
B 70/120
TYPE IV
SYSTEM CONTROL IC801
EQ CONTROL CIRCUIT IC303,304
LEVEL SHIFT Q814
POWER OFF DET Q705,706
B+ (12V)
B+ (5V)
B+ (7V)
B− (-7V)
VOLTAGE REG. Q703,704
VOLTAGE REG. Q701,702
VOLTAGE REG. IC701
VOLTAGE REG. IC702
RECT D701-706
CNP301(4/4)
AC
—R-CH—
SAME AS L-CH
CNP301(2/4)
SIRCS (AUB)
D805
SIRCS Q816
AUB IN
HIGH DUBBING
NORMAL DUBBING
AMS
A FWD
A REV
B FWD
B REV
B PAUSE
B REC
KEY 3
KEY 1
KEY 2
RESET
D813 (HIGH DUBBING)
D814 (NORMAL DUBBING)
D812 (AMS/BLANK SKIP)
LED DRIVE Q813
D806 (FWD)
D807 (REV)
D808 (FWD)
D809 (REV)
D810 (PAUSE)
D811 (REC)
LED DRIVE Q811
LED DRIVE Q812
S814 AMS/BLANK SKIP
S815 HIGH
S816 NORMAL
DUBBING SPEED
S801
S802
S803
S804
S805
A
B
S818 DIRECTION MODE
RELAY
S302 DOLBY NR
OFF
A
C

ates the

)
A ◀
PLAY
A ▶
B ◀
PLAY
B ▶

3-3. PRINTED WIRING BOARDS

- **See page 20 for Semiconductor Lead Layouts.**

Note on Printed Wiring Boards:

- o—— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.

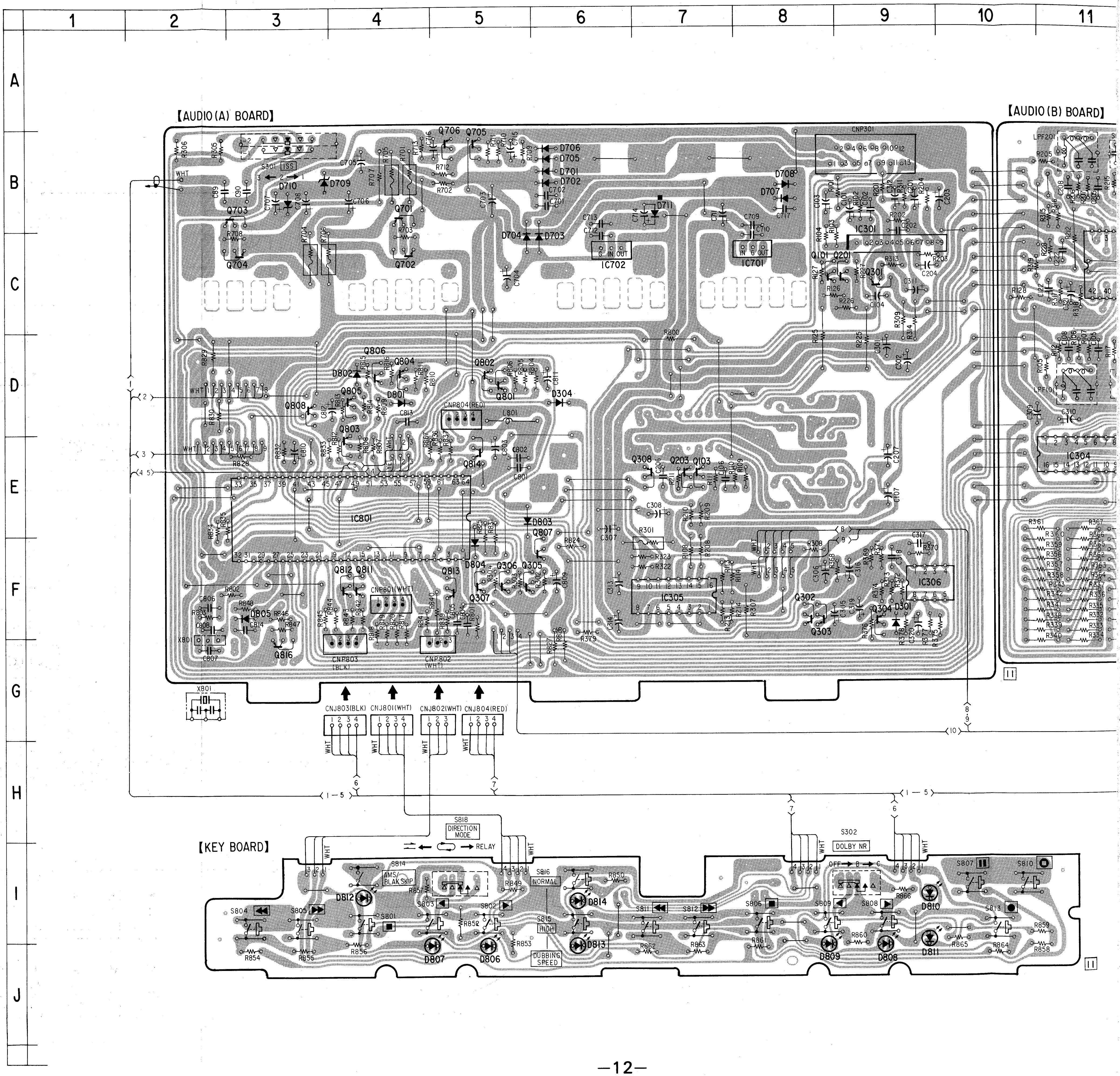
• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D11A	D-24	Q11A	B-16
D11B	I-24	Q11B	G-16
D81	I-18	Q12A	D-22
D301	F-9	Q12B	I-22
D304	D-6	Q81	G-18
D701	B-6	Q82	H-17
D702	B-6	Q83	H-17
D703	C-6	Q101	C-9
D704	C-5	Q102	F-12
D705	B-6	Q103	E-7
D706	B-6	Q201	C-9
D707	B-8	Q202	E-12
D708	B-8	Q203	E-7
D709	B-3	Q301	C-9
D710	B-3	Q302	F-8
D711	B-7	Q303	F-8
D801	D-4	Q304	F-9
D802	D-4	Q305	F-6
D803	E-5	Q306	F-5
D804	F-5	Q307	F-5
D805	F-3	Q308	E-7
D806	J-5	Q701	B-4
D807	J-5	Q702	C-4
D808	J-9	Q703	B-3
D809	J-8	Q704	C-3
D810	I-9	Q705	B-5
D811	J-9	Q706	B-5
D812	I-4	Q801	D-5
D813	J-6	Q802	D-5
D814	I-6	Q803	E-4
		Q804	D-4
IC81A	D-16	Q805	D-4
IC81B	I-16	Q806	D-4
IC301	C-9	Q807	F-6
IC302	C-12	Q808	D-3
IC303	E-12	Q811	F-4
IC304	E-11	Q812	F-4
IC305	F-7	Q813	F-5
IC306	F-9	Q814	E-5
IC701	C-8	Q816	G-3
IC702	C-6		
IC801	E-4		

Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- : fusible resistor.
- ▭ : adjustment for repair.
- Power voltage is fed with supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : REC
  (   ) : PB
- Voltages are taken with a VOM (50 kΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ▷ : PB (DECK B)
  ▷▷ : REC (DECK B)

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.



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4
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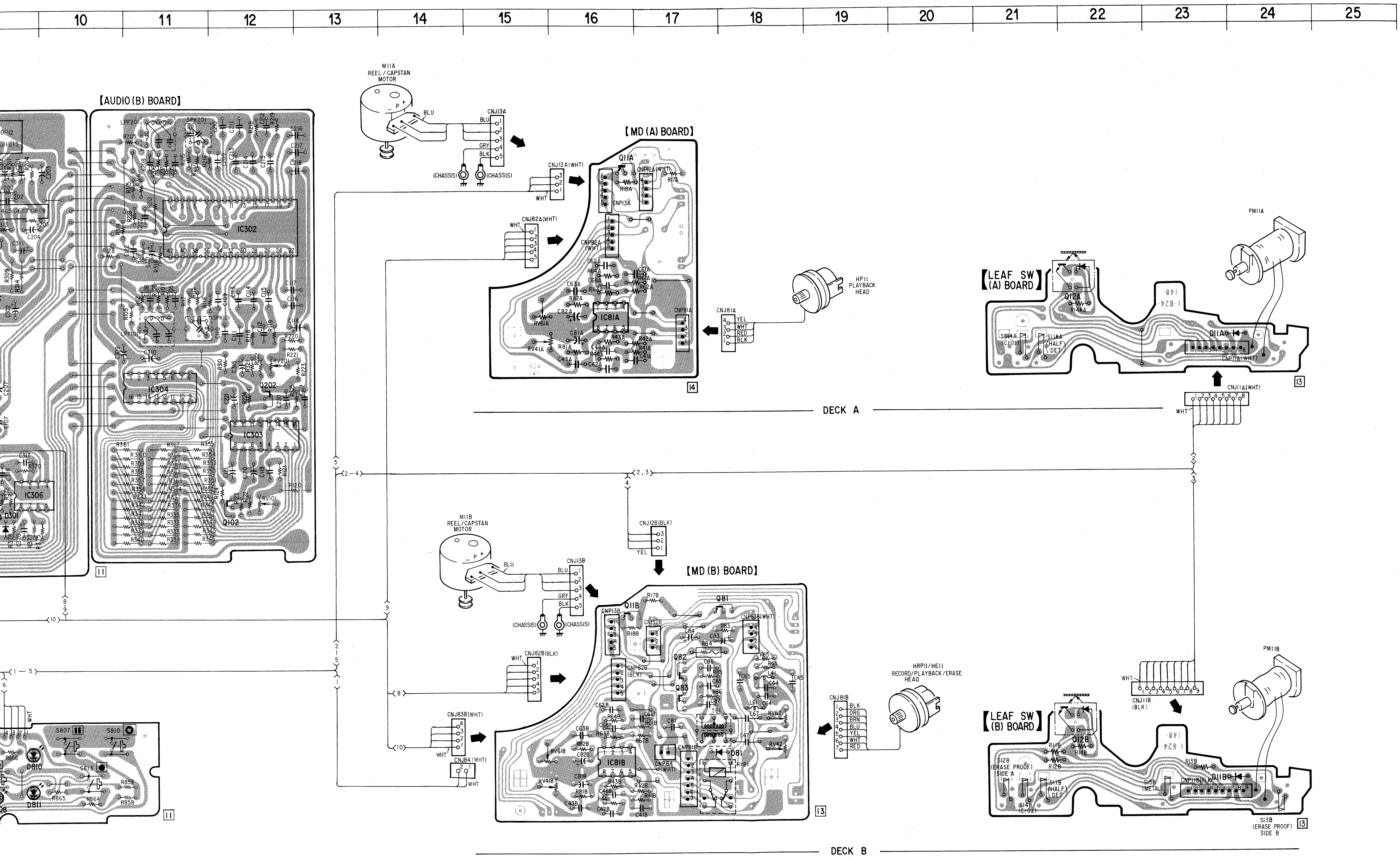
11
A
B
C
D
E
F
G
H
I
J
【AUDIO (A) BOARD】
【AUDIO (B) BOARD】
【KEY BOARD】
IC801
IC301
IC302
IC304
IC305
IC306
IC701
IC702
CNP301
CNP801(WHT)
CNP802 (WHT)
CNP803 (BLK)
CNP804(RED)
CNJ803(BLK)
CNJ801(WHT)
CNJ802(WHT)
CNJ804(RED)
X801
S301 ISS
S302 DOLBY NR
OFF B C
S818 DIRECTION MODE
RELAY
S814 AMS/BLANK SKIP
S816 NORMAL
S815 HIGH
DUBBING SPEED
S801
S802
S803
S804
S805
S806
S807
S808
S809
S810
S811
S812
S813
D806
D807
D808
D809
D810
D811
D812
D813
D814
WHT
LPF201
LPF101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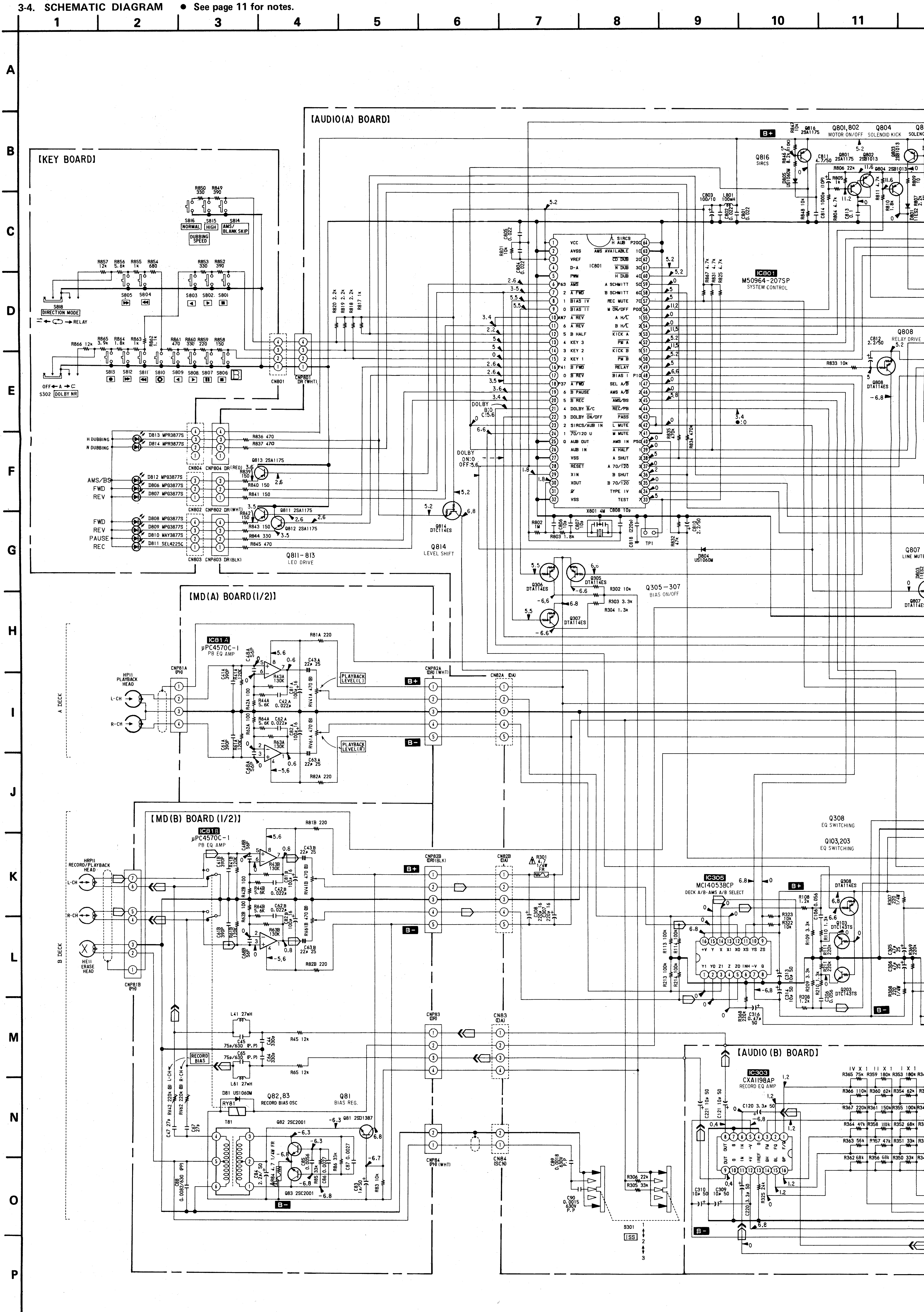
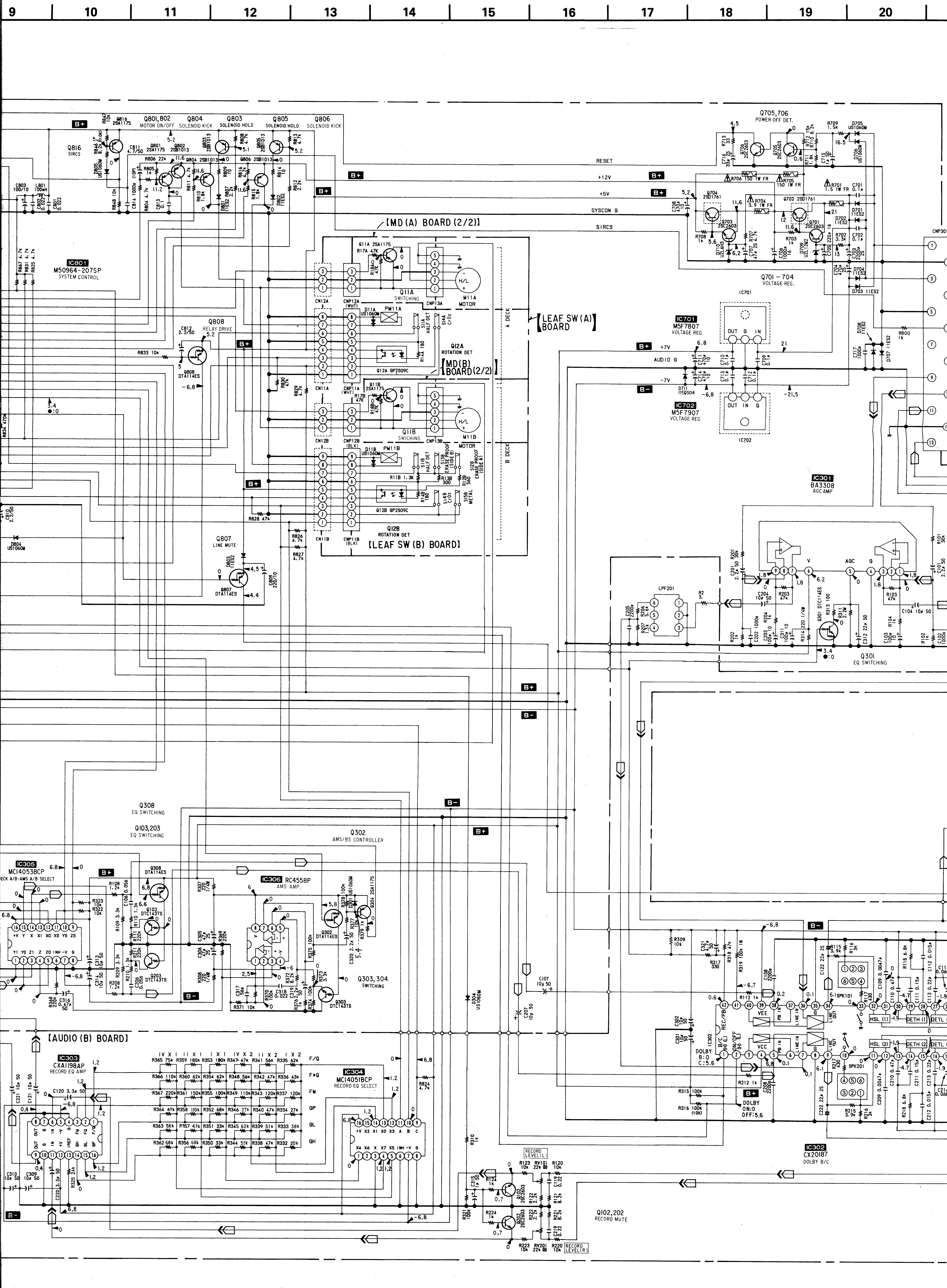
21
22
23
24
25
【AUDIO (B) BOARD】
IC302
IC304
IC303
IC306
Q202
Q102
D301
SPK201
SPK101
LPF201
LPF101
RV201
RV101
M11A
REEL/CAPSTAN
MOTOR
CNJ13A
BLU
GRY
BLK
(CHASSIS)
CNJ12A (WHT)
WHT
CNJ82A (WHT)
【MD (A) BOARD】
Q11A
CNP12A (WHT)
CNP13A
CNP82A (WHT)
IC81A
RV61A
RV41A
CNP81A
CNJ81A
YEL
WHT
RED
HP11
PLAYBACK
HEAD
14
【LEAF SW (A) BOARD】
PM11A
Q12A
R14AA
S14A (CrO2)
S11AA (HALF DET)
D11A
CNP11A (WHT)
CNJ11A (WHT)
13
DECK A
M11B
REEL/CAPSTAN
MOTOR
CNJ13B
CNJ12B (BLK)
YEL
CNJ82B (BLK)
CNJ83B (WHT)
CNJ84 (WHT)
【MD (B) BOARD】
Q11B
Q81
Q82
Q83
CNP13B
CNP12B
CNP82B (BLK)
CNP83B (WHT)
CNP84 (WHT)
CNP81B
IC81B
T81
D81
RY81
RV61B
RV41B
RV42
RV62
CNJ81B
BLK
ORG
BRN
BLU
YEL
WHT
RED
HRP11/HE11
RECORD/PLAYBACK/ERASE
HEAD
13
【LEAF SW (B) BOARD】
PM11B
CNJ11B (BLK)
Q12B
R14B
S12B (ERASE PROOF) SIDE A
S14B (CrO2)
S11B (HALF DET)
S15B (METAL)
R13B
D11B
CNP11B (BLK)
S13B (ERASE PROOF) SIDE B
13
S807
S810
S813
D810
D811
11
11
DECK B

3-4. SCHEMATIC DIAGRAM • See page 11 for notes.



[KEY BOARD]
[AUDIO(A) BOARD]
[MD(A) BOARD(1/2)]
[MD(B) BOARD(1/2)]
[AUDIO(B) BOARD]
S816 NORMAL
S815 HIGH
S814 AMS/BLANK SKIP
DUBBING SPEED
S818 DIRECTION MODE
RELAY
S302 DOLBY NR
OFF A C
H DUBBING
N DUBBING
AMS/BS
FWD
REV
PAUSE
REC
Q811-813 LED DRIVE
Q814 DTC114ES LEVEL SHIFT
IC801 M50964-207SP SYSTEM CONTROL
Q816 SIRCS
Q801,802 MOTOR ON/OFF
Q804 SOLENOID KICK
Q808 RELAY DRIVE
Q807 LINE MUTE
Q305-307 BIAS ON/OFF
DOLBY ON:0 OFF:5.6
X801 4M
TP1
D804 US1060M
IC81A μPC4570C-1 PB EQ AMP
IC81B μPC4570C-1 PB EQ AMP
HP11 PLAYBACK HEAD
HRP11 RECORD/PLAYBACK HEAD
HE11 ERASE HEAD
A DECK
B DECK
L-CH
R-CH
PLAYBACK LEVEL(L)
PLAYBACK LEVEL(R)
RECORD BIAS
B+
B-
Q82,83 RECORD BIAS OSC
Q81 BIAS REG.
RY81
T81
S301 ISS
IC305 MC14053BCP DECK A/B·AMS A/B SELECT
Q308 EQ SWITCHING
Q103,203 EQ SWITCHING
IC303 CXA1198AP RECORD EQ AMP
CN801 CNP801 CN804 CNP804 CN802 CNP802 CN803 CNP803
CNP81A CNP82A CN82A CNP81B CNP82B CN82B CNP83 CN83 CNP84 CN84

9
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19
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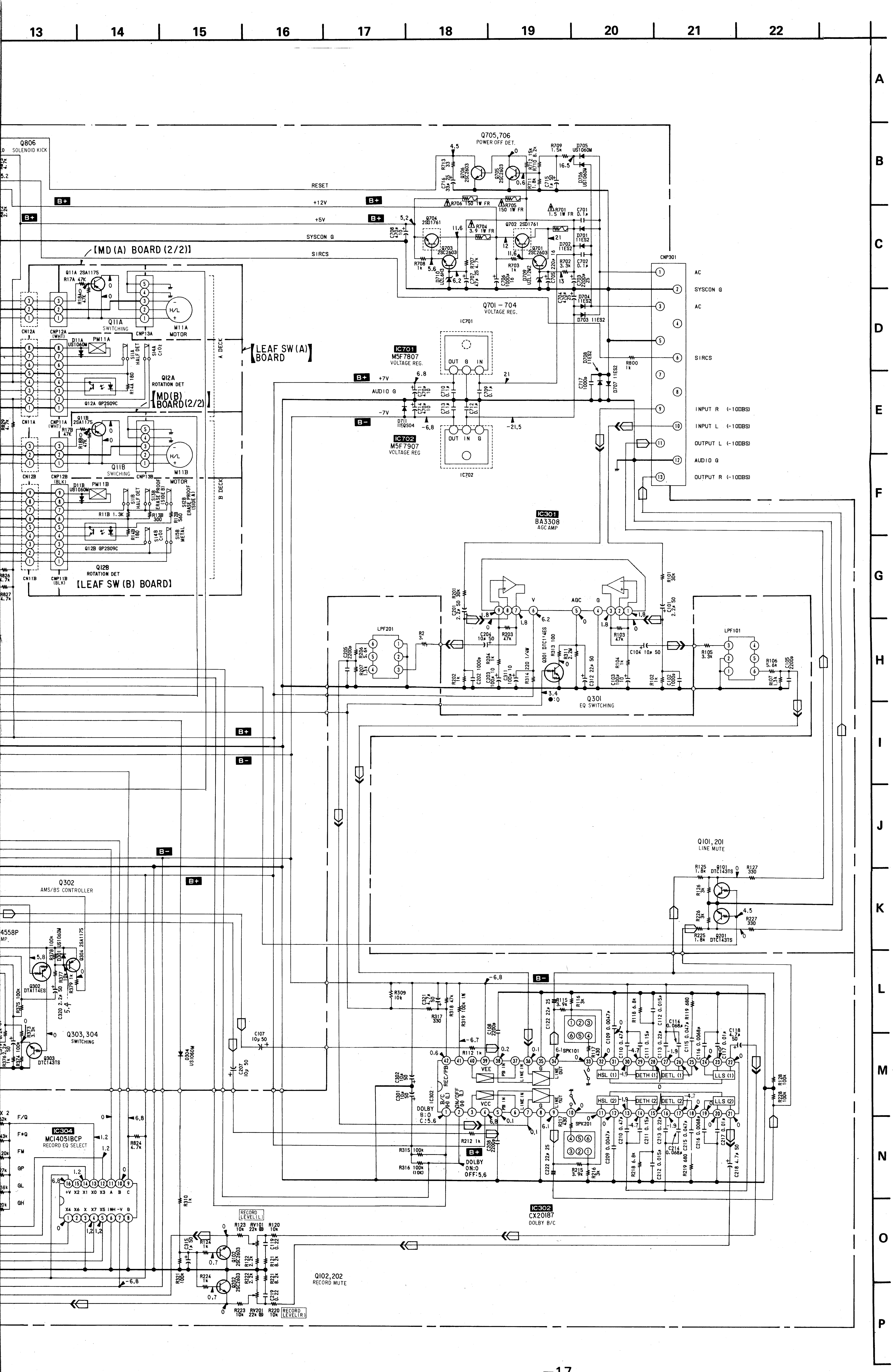
Q801,802 MOTOR ON/OFF
Q804 SOLENOID KICK
Q803 SOLENOID HOLD
Q805 SOLENOID HOLD
Q806 SOLENOID KICK
Q816 SIRCS
Q705,706 POWER OFF DET.
RESET
+12V
+5V
SYSCON G
SIRCS
B+
B-
IC801 M50964-207SP SYSTEM CONTROL
[MD(A) BOARD (2/2)]
Q11A SWITCHING
M11A MOTOR
Q12A ROTATION DET
[LEAF SW(A) BOARD]
[MD(B) BOARD(2/2)]
Q11B SWICHING
M11B MOTOR
Q12B ROTATION DET
[LEAF SW (B) BOARD]
A DECK
B DECK
CN12A
CNP12A (WHT)
CNP13A
CN11A
CNP11A (WHT)
CN12B
CNP12B (BLK)
CNP13B
CN11B
CNP11B (BLK)
Q808 RELAY DRIVE
Q807 LINE MUTE
Q701 - 704 VOLTAGE REG.
IC701 M5F7807 VOLTAGE REG.
IC702 M5F7907 VOLTAGE REG
+7V
AUDIO G
-7V
IC301 BA3308 AGC AMP
LPF201
AGC
Q301 EQ SWITCHING
Q308 EQ SWITCHING
Q103,203 EQ SWITCHING
Q302 AMS/BS CONTROLLER
IC305 MC14053BCP DECK A/B-AMS A/B SELECT
IC306 RC4558P AMS AMP.
Q303, 304 SWITCHING
[AUDIO (B) BOARD]
IC303 CXA1198AP RECORD EQ AMP
IC304 MC14051BCP RECORD EQ SELECT
F/Q
F*Q
FM
GP
GL
GH
IC302 CX20187 DOLBY B/C
DOLBY B:0 C:5.6
DOLBY ON:0 OFF:5.6
HSL (1)
HSL (2)
DETH (1)
DETH (2)
SPK101
SPK201
RECORD LEVEL(L)
RECORD LEVEL(R)
Q102,202 RECORD MUTE
CNP301



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I
J
K
L
M
N
O
P
Q806
SOLENOID KICK
Q705,706
POWER OFF DET.
RESET
+12V
+5V
SYSCON G
SIRCS
B+
B-
[MD (A) BOARD (2/2)]
[LEAF SW (A) BOARD
[MD (B) BOARD (2/2)]
[LEAF SW (B) BOARD]
A DECK
B DECK
Q11A
SWITCHING
M11A
MOTOR
Q11B
SWICHING
M11B
MOTOR
H/L
Q12A
ROTATION DET
Q12B
ROTATION DET
Q701 - 704
VOLTAGE REG.
IC701
M5F7807
VOLTAGE REG.
IC702
M5F7907
VOLTAGE REG
CNP301
AC
SYSCON G
AC
SIRCS
INPUT R (-10DBS)
INPUT L (-10DBS)
OUTPUT L (-10DBS)
AUDIO G
OUTPUT R (-10DBS)
IC301
BA3308
AGC AMP
LPF201
LPF101
Q301
EQ SWITCHING
Q101,201
LINE MUTE
Q302
AMS/BS CONTROLLER
Q303,304
SWITCHING
IC304
MC14051BCP
RECORD EQ SELECT
IC302
CX20187
DOLBY B/C
DOLBY
B:0
C:5.6
DOLBY
ON:0
OFF:5.6
Q102,202
RECORD MUTE
RECORD LEVEL(L)
RECORD LEVEL(R)
HSL (1)
DETH (1)
DETL (1)
LLS (1)
HSL (2)
DETH (2)
DETL (2)
LLS (2)
VEE
VCC
SPK101
SPK201

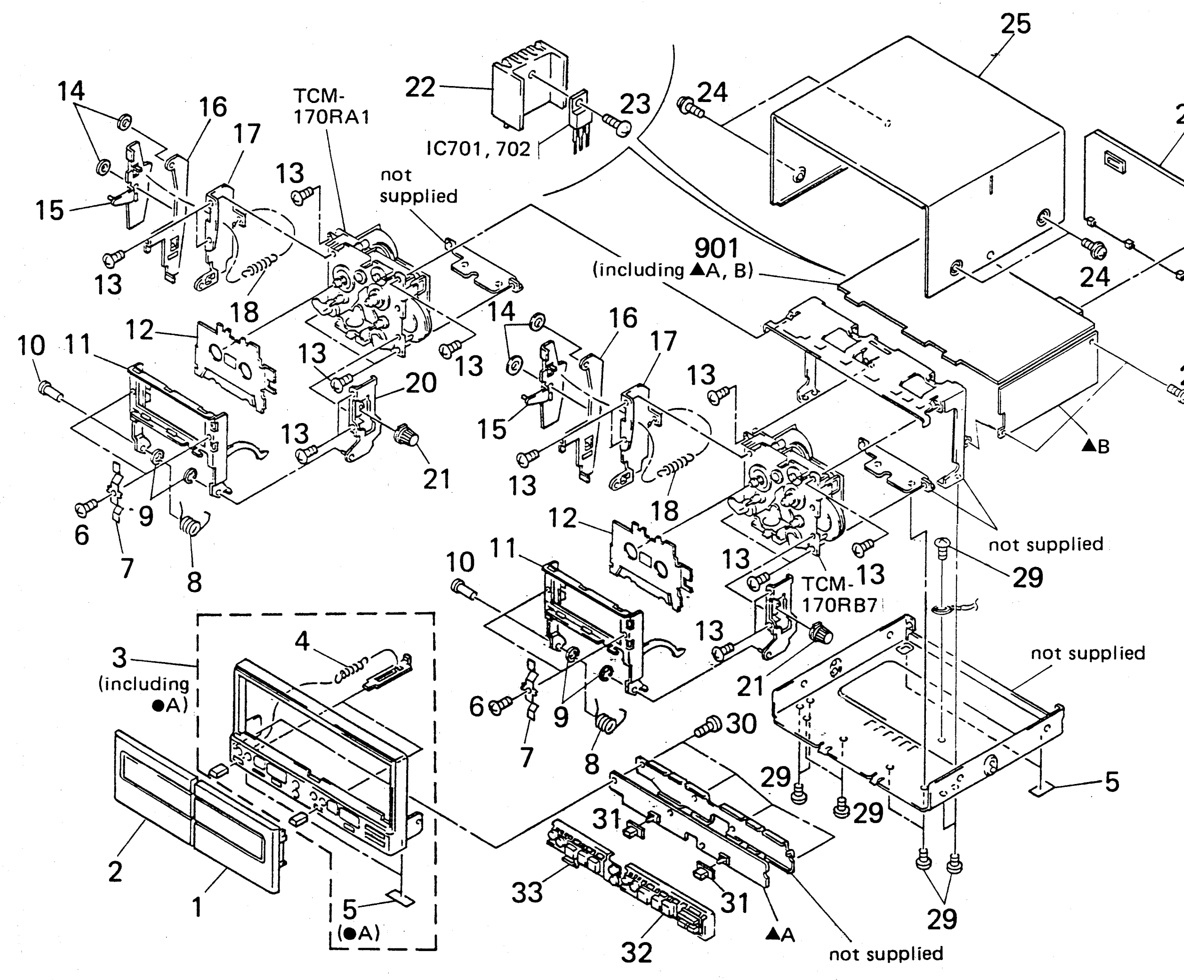
SECTION 4
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

(1) MAIN SECTION



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16
17
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13
TCM-170RA1
22
23
24
IC701, 702
not supplied
25
26
23
27
not supplied
28
901 (including ▲A, B)
24
29
▲B
10
11
12
18
13
20
21
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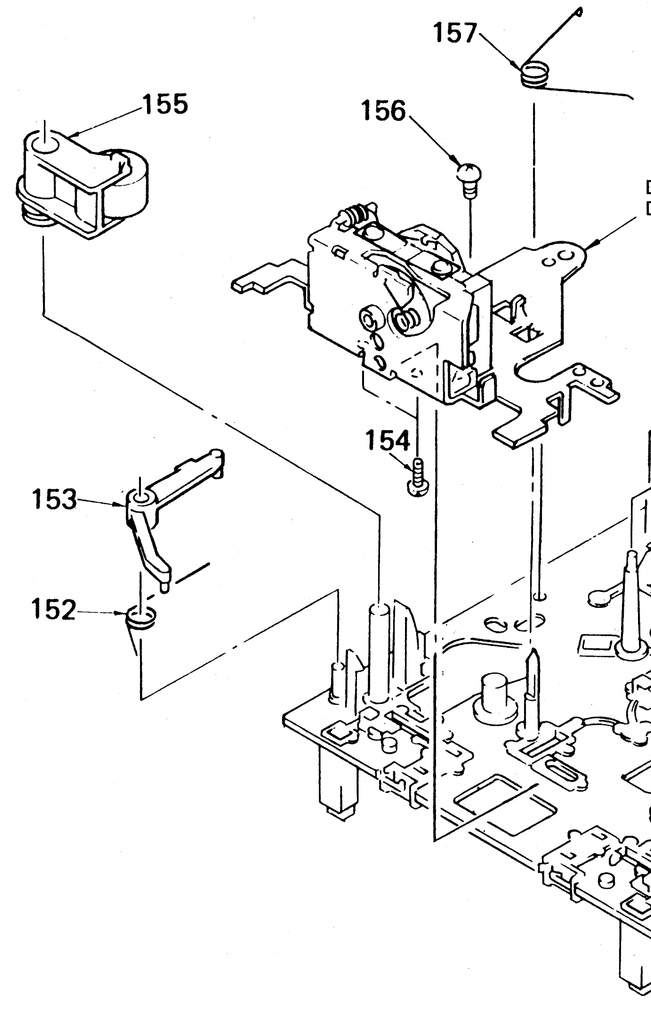
17
15
13
12
18
10
11
13
TCM-170RB7
not supplied
29
not supplied
3 (including ●A)
4
2
1
5 (●A)
6
9
7
8
30
29
29
31
33
31
32
▲A
29
not supplied
5

No.	Part No.	Description	Remarks
1	X-3340-146-1	LID (B) ASSY, CASSETTE	
2	X-3340-145-1	LID (A) ASSY, CASSETTE	
3	X-3340-149-1	PANEL ASSY, FRONT	
4	3-567-110-00	SPRING, TENSION	
5	4-930-336-01	FOOT (FELT)	
6	7-621-255-15	SCREW +PTT 2X3 (S)	
7	3-340-137-01	SPRING	
8	3-346-364-01	SPRING (LOADING), TORSION	
9	7-624-105-04	RETAINING, RING E-2.3	
10	*3-346-334-01	SHAFT (HOLDER FITTING LEFT)	
11	*3-340-150-01	HOLDER, CASSETTE	
12	*3-340-123-01	RETAINER, CASSETTE	
13	7-621-773-86	SCREW +BVTT 2.6X4 (S)	
14	3-558-708-21	WASHER, STOPPER	
15	*X-3332-465-1	LEVER (LOCK) ASSY	
16	*3-340-142-01	LEVER (EJECT)	
17	*X-3332-466-1	BRACKET (LEFT) ASSY	
18	3-343-474-01	SPRING, TENSION	

No.	Part No.	Description	Remarks
20	*X-3332-494-1	BRACKET (R) ASSY	
21	X-3332-464-1	GEAR (DAMPER) ASSY	
22	*4-921-402-01	HEAT SINK	
23	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
24	3-704-366-01	SCREW (CASE) (M3X8)	
25	4-930-355-21	CASE	
26	*3-352-815-11	PANEL, BACK	
27	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
28	*3-349-021-01	(US, AEP, UK).....LABEL, MODEL NUMBER (AE/U)	
	*3-349-031-01	(West Germany)....LABEL, MODEL NUMBER (AE4)	
29	7-685-870-01	SCREW +BVTT 3X5 (S)	
30	7-685-136-11	SCREW +PTP 2.6X12 TYPE2 N-S	
31	3-349-054-01	KNOB (SLIDE)	
32	X-3340-148-1	BUTTON (B) ASSY	
33	X-3340-147-1	BUTTON (A) ASSY	
901	*A-2006-097-A	MOUNTED PCB, AUDIO	
IC701	8-759-604-86	IC M5F7807	
IC702	8-759-604-90	IC M5F7907	

(2) TAPE TRANSPORT MECHANISM-1
(DECK A: TCM-170RA1
DECK B: TCM-170RB7)



157
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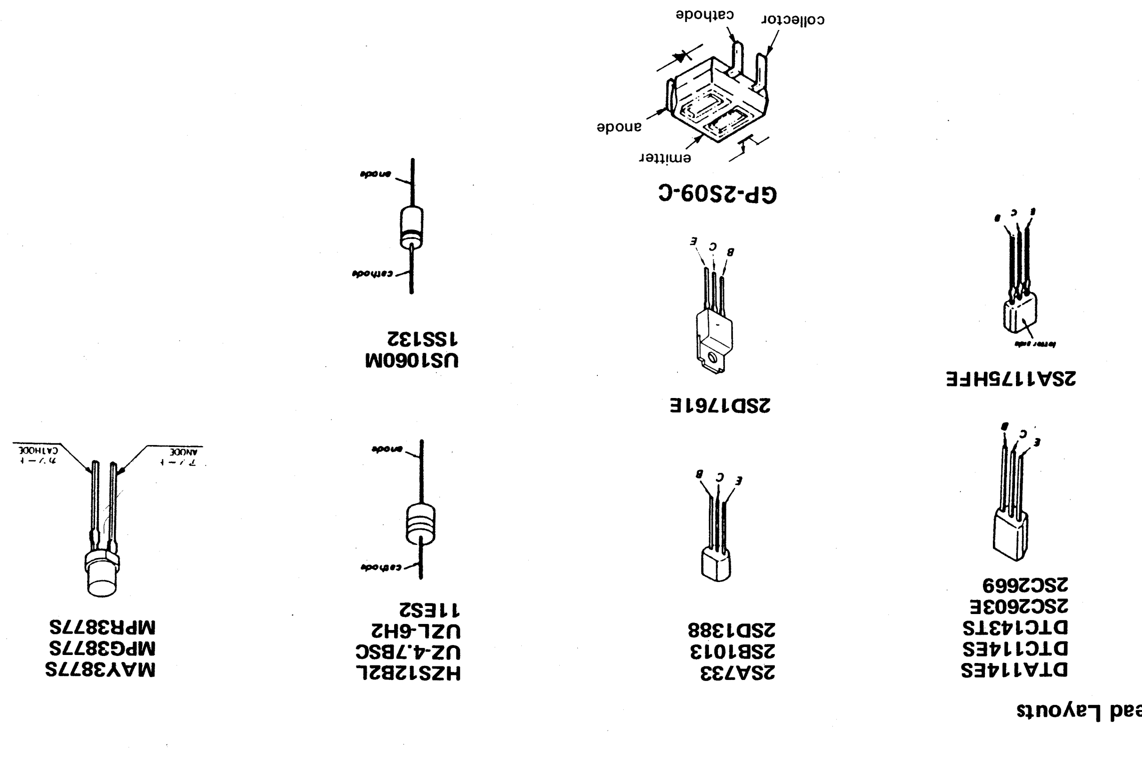
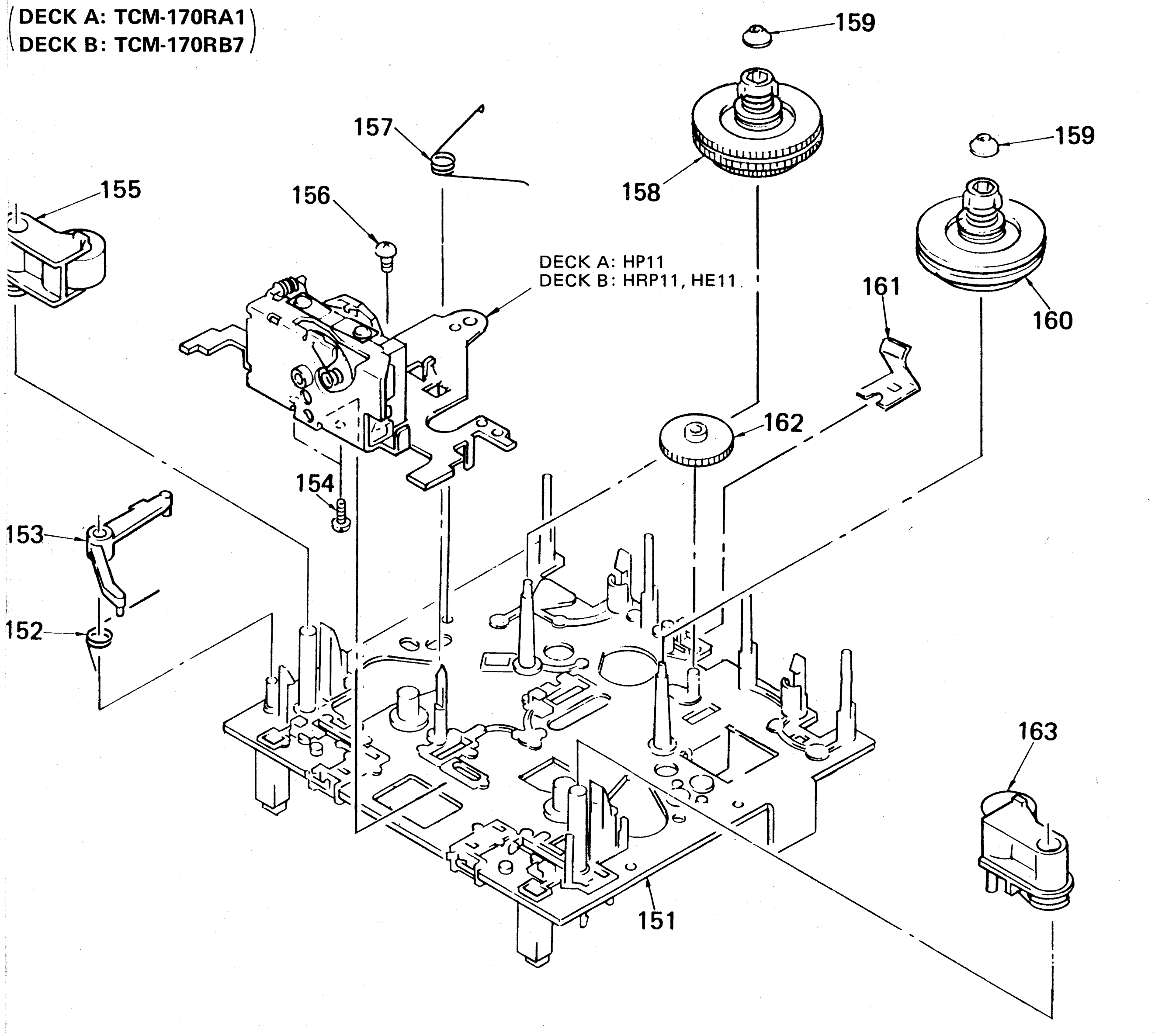
152

No.	Part No.	Description	Remarks
151	*X-3343-418-1	CHASSIS ASSY, MECHANICAL	
152	3-343-477-01	SPRING, TORSION (EJECT SAFTY)	
153	*3-343-476-01	LEVER (EJECT SAFETY LEVER)	
154	7-685-102-19	SCREW +P 2X4 NON-SLIT TYPE 2	
155	X-3343-403-1	LEVER (PINCH LEVER REV) ASSY	
156	7-621-773-86	SCREW +BVTT 2.6X4 (S)	
157	3-343-401-01	SPRING, TORSION	
158	X-3343-415-1	TABEL (REV) ASSY, REEL	


ead Layouts
DTA114ES
DTC114ES
DTC143TS
2SC2603E
2SC2669
2SA733
2SB1013
2SD1388
HZS12B2L
UZ-4.7BSC
UZL-6H2
11ES2
MAY3877S
MPG3877S
MPR3877S
2SA1175HFE
2SD1761E
US1060M
1SS132
GP-2S09-C
emitter
anode
cathode
collector
anode
cathode
CATHODE
ANODE

TAPE TRANSPORT MECHANISM-1
(DECK A: TCM-170RA1)
(DECK B: TCM-170RB7)


159
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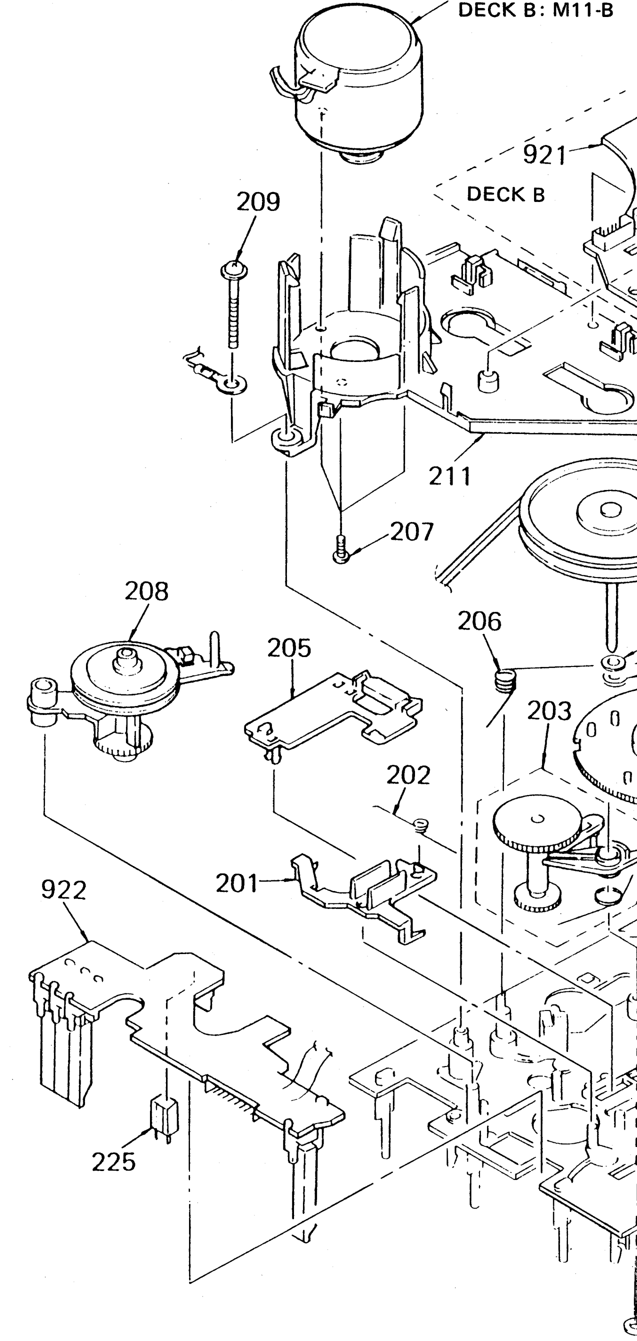
158
DECK A: HP11
DECK B: HRP11, HE11
161
160
162
154
153
152
163
151

Part No.	Description	Remarks
*X-3343-418-1	CHASSIS ASSY, MECHANICAL	
3-343-477-01	SPRING, TORSION (EJECT SAFTY)	
*3-343-476-01	LEVER (EJECT SAFETY LEVER)	
7-685-102-19	SCREW +P 2X4 NON-SLIT TYPE 2	
X-3343-403-1	LEVER (PINCH LEVER REV) ASSY	
7-621-773-86	SCREW +BVTT 2.6X4 (S)	
3-343-401-01	SPRING, TORSION	
X-3343-415-1	TABEL (REV) ASSY, REEL	

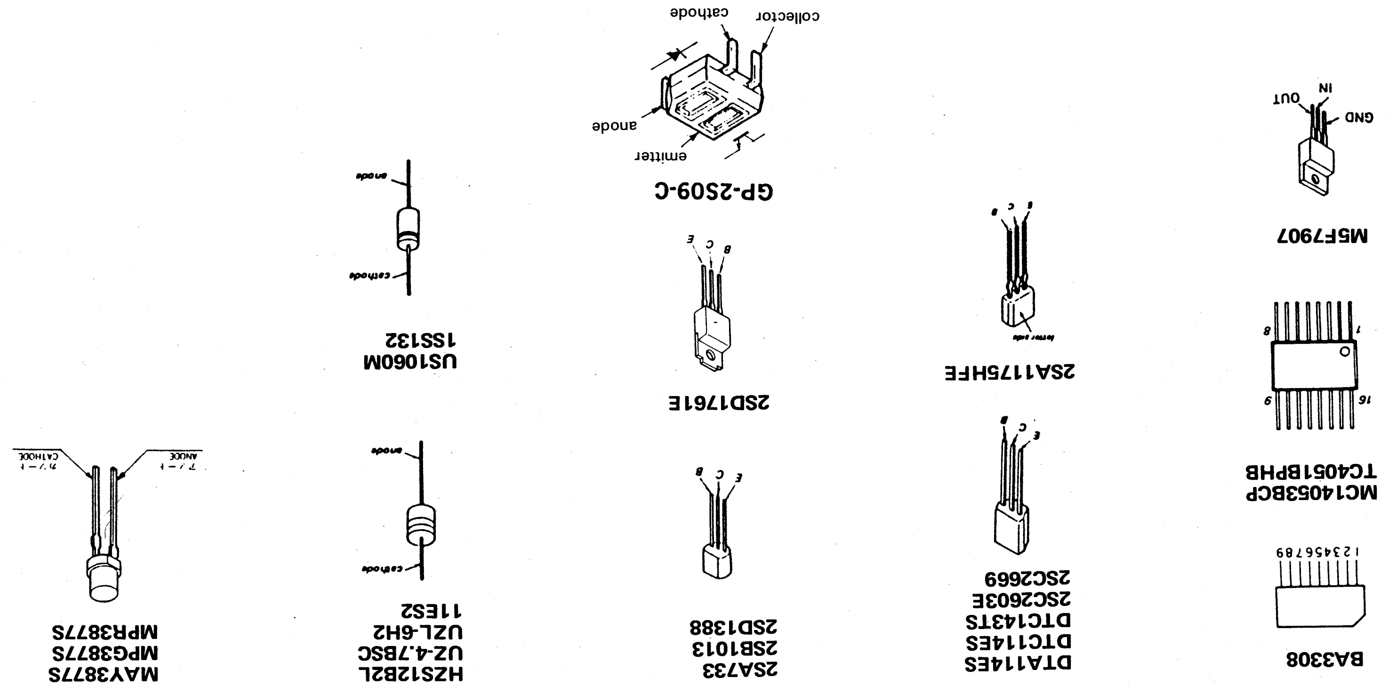
No.	Part No.	Description	Remarks
159	3-343-439-01	CAP (REEL TABLE)	
160	X-3343-401-1	TABEL ASSY, REEL	
161	3-343-420-01	SPRING, LEAF	
162	3-343-411-01	GEAR (FF GEAR)	
163	X-3343-402-1	LEVER (PINCH LEVER FWD) ASSY	
HP11	A-2108-129-A	(DECK A)...CHASSIS ASSY, HEAD	
HRP11 HE11	A-2108-130-A	(DECK B)...CHASSIS ASSY, HEAD	

(3) TAPE TRANSPORT MECHANISM-2
(DECK A: TCM-170RA1)
(DECK B: TCM-170RB7)

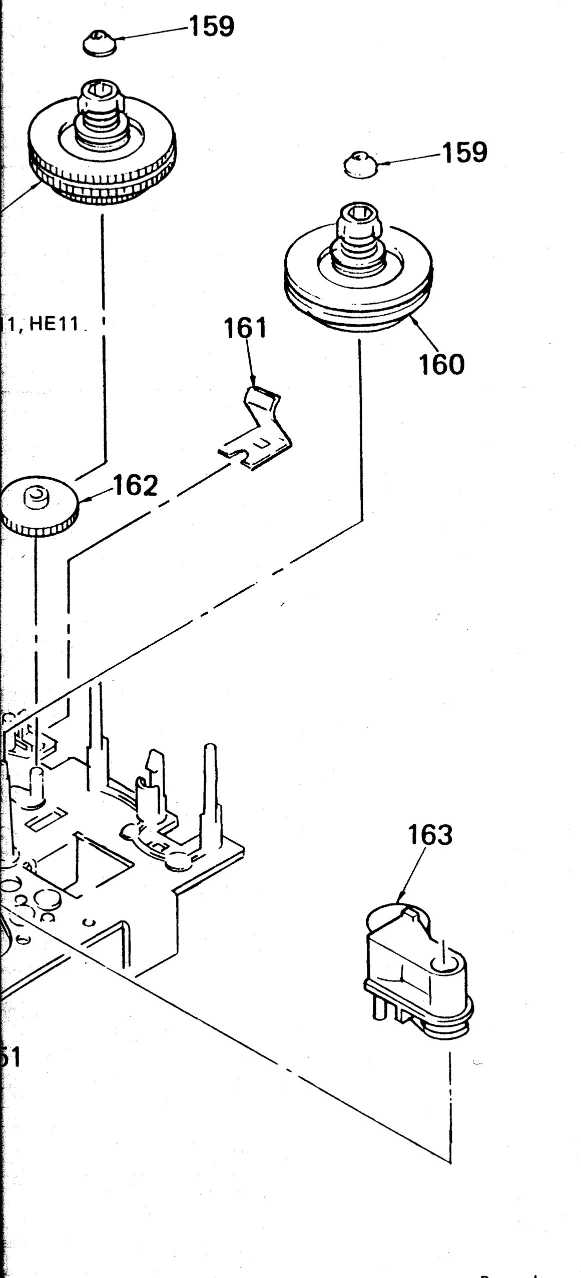

DECK A: M11-A
DECK B: M11-B
921
DECK B
209
211
207
208
206
205
203
202
201
922
225

No.	Part No.	Description	Remarks
201	3-343-453-01	SLIDER (BRAKE PLATE)	
202	3-343-429-01	SPRING, TORSION	
203	X-3343-406-1	LEVER (TU ARM REV) ASSY	
204	3-343-470-01	GEAR (CAM GEAR)	
205	*3-343-461-01	SLIDER	
206	3-343-430-01	SPRING, TORSION	
207	7-627-556-28	SCREW +P 2.6X3.5	
208	X-3343-414-1	LAVER (FR ARM) ASSY	
209	3-343-403-01	SCREW (PTTWH 2X18)	
211	*X-3343-407-1	BASE (THRUST RETAINER) ASSY	
212	4-605-835-11	WASHER (2.6), POLYSLIDER	
213	3-307-482-00	WASHER, LUMILER	
214	X-3343-429-1	FLYWHEEL COMPLETE ASSY	
215	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT	
216	3-343-480-01	PLATE, SHIELD	
217	*3-343-457-01	SLIDER (REVERSE SLIDER)	
218	3-343-462-01	LEVER	

No.	P
219	3
220	3
221	X
222	*3
223	*3
224	3
225	*3
226	X
227	3
921	*1
	*1
922	*1
M11A	X
M11B	X
PM11A	1
PM11B	1

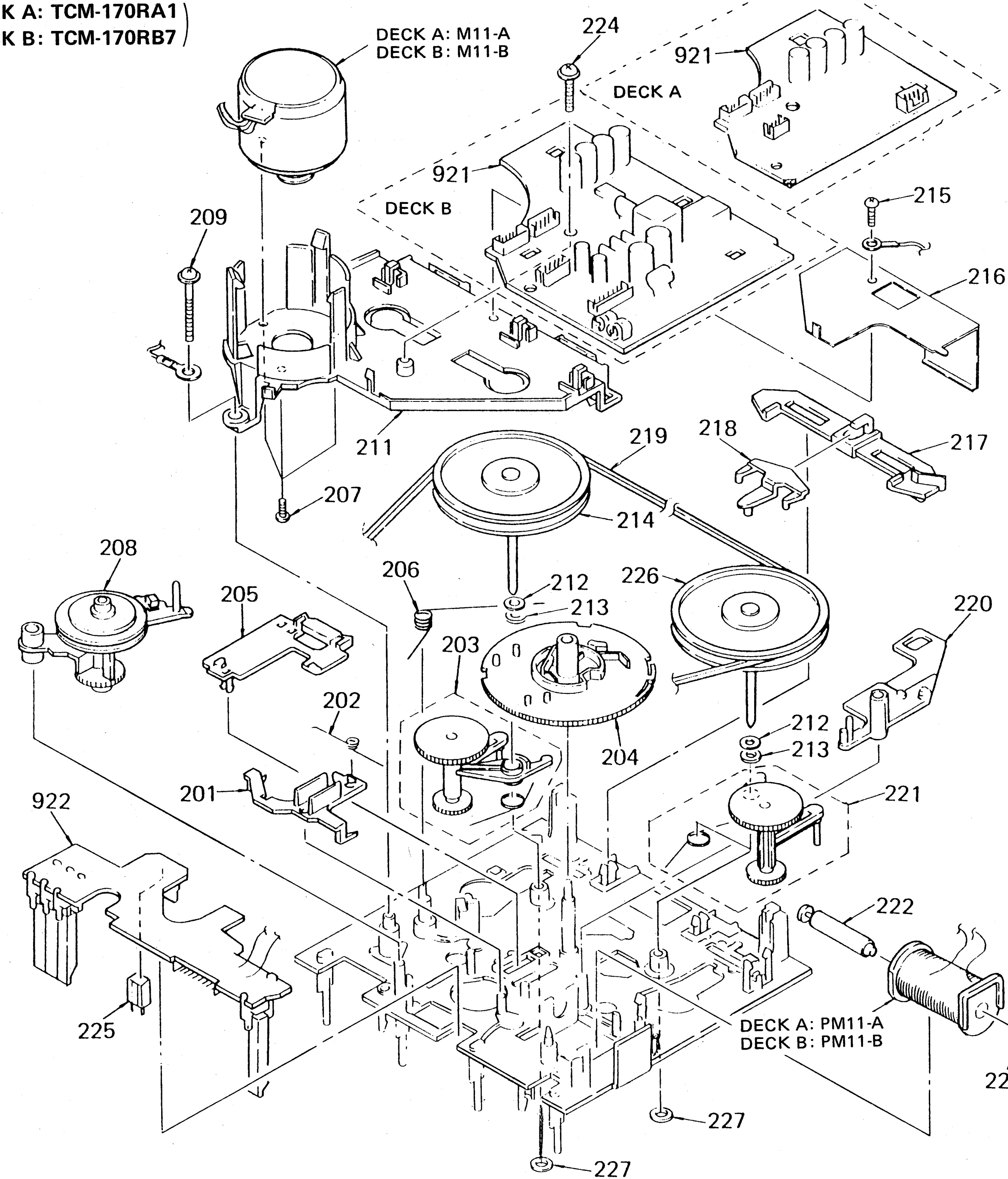

BA3308
DTA114ES
DTC114ES
DTC143TS
2SC2603E
2SC2669
2SA733
2SB1013
2SD1388
HZS12B2L
UZ-4.7BSC
UZL-6H2
11ES2
MAY3877S
MPG3877S
MPR3877S
MC14053BCP
TC4051BPHB
2SA1175HFE
2SD1761E
US1060M
1SS132
MSF7907
GND
OUT
IN
GP-2S09-C
collector
cathode
anode
emitter
anode
cathode
CATHODE
ANODE

● Semiconductor Lead Layouts


159
159
1, HE11
161
160
162
163
51

t No.	Description	Remarks
343-439-01	CAP (REEL TABLE)	
3343-401-1	TABEL ASSY, REEL	
343-420-01	SPRING, LEAF	
343-411-01	GEAR (FF GEAR)	
3343-402-1	LEVER (PINCH LEVER FWD) ASSY	
2108-129-A	(DECK A)...CHASSIS ASSY, HEAD	
2108-130-A	(DECK B)...CHASSIS ASSY, HEAD	

(3) TAPE TRANSPORT MECHANISM-2
(DECK A: TCM-170RA1)
(DECK B: TCM-170RB7)


DECK A: M11-A
DECK B: M11-B
224
921
DECK A
921
DECK B
215
209
216
211
219
218
217
207
214
208
206
212
213
226
205
203
220
202
204
212
213
201
221
922
222
225
DECK A: PM11-A
DECK B: PM11-B
223
227
227

No.	Part No.	Description	Remarks
201	3-343-453-01	SLIDER (BRAKE PLATE)	
202	3-343-429-01	SPRING, TORSION	
203	X-3343-406-1	LEVER (TU ARM REV) ASSY	
204	3-343-470-01	GEAR (CAM GEAR)	
205	*3-343-461-01	SLIDER	
206	3-343-430-01	SPRING, TORSION	
207	7-627-556-28	SCREW +P 2.6X3.5	
208	X-3343-414-1	LAVER (FR ARM) ASSY	
209	3-343-403-01	SCREW (PTTWH 2X18)	
211	*X-3343-407-1	BASE (THRUST RETAINER) ASSY	
212	4-605-835-11	WASHER (2.6), POLYSLIDER	
213	3-307-482-00	WASHER, LUMILER	
214	X-3343-429-1	FLYWHEEL COMPLETE ASSY	
215	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT	
216	3-343-480-01	PLATE, SHIELD	
217	*3-343-457-01	SLIDER (REVERSE SLIDER)	
218	3-343-462-01	LEVER	

No.	Part No.	Description	Remarks
219	3-343-426-02	BELT (CAPSTAN BELT SQUARE)	
220	3-343-493-01	LEVER (PM LEVER)	
221	X-3343-405-1	LEVER (TU ARM FWD) ASSY	
222	*3-343-425-01	ARBOR(MOVABLE IRON ARBOR),IRON	
223	*3-343-424-01	ARBOR (FIXED IRON ARBOR), IRON	
224	3-343-404-01	SCREW (PTPWH 2X10)	
225	*3-343-419-01	HOLDER (S SENSER A)	
226	X-3343-431-1	FLYWHEEL (REV) COMPLETE ASSY	
227	3-343-473-01	WASHER, NYLON	
921	*1-624-146-11	(DECK B)...PC BOARD, MD-B	
	*1-624-147-11	(DECK A)...PC BOARD, MD-A	
922	*1-624-148-11	PC BOARD, LEAF SW	
M11A	X-3343-408-1	(DECK A)...MOTOR ASSY	
M11B	X-3343-408-1	(DECK B)...MOTOR ASSY	
PM11A	1-454-456-11	(DECK A)...SOLENOID, PLUNGER	
PM11B	1-454-456-11	(DECK B)...SOLENOID, PLUNGER	

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description			
901	*A-2006-097-A	MOUNTED PCB, AUDIO			
921	*1-624-146-11	(DECK B)...PC BOARD, MD-B			
	*1-624-147-11	(DECK A)...PC BOARD, MD-A			
922	*1-624-148-11	PC BOARD, LEAF SW			
C41A	1-162-289-31	CERAMIC	390PF	10%	50V
C41B	1-162-289-31	CERAMIC	390PF	10%	50V
C42A	1-136-157-00	FILM	0.022MF	5%	50V
C42B	1-136-157-00	FILM	0.022MF	5%	50V
C43A	1-124-282-00	ELECT	22MF	20%	25V
C43B	1-124-282-00	ELECT	22MF	20%	25V
C44	1-162-288-31	CERAMIC	330PF	10%	50V
C45	1-136-273-91	FILM	75PF	5%	630V
C47	1-162-209-31	CERAMIC	27PF	5%	50V
C48A	1-162-217-31	CERAMIC	56PF	5%	50V
C48B	1-162-217-31	CERAMIC	56PF	5%	50V
C61A	1-162-289-31	CERAMIC	390PF	10%	50V
C61B	1-162-289-31	CERAMIC	390PF	10%	50V
C62A	1-136-157-00	FILM	0.022MF	5%	50V
C62B	1-136-157-00	FILM	0.022MF	5%	50V
C63A	1-124-282-00	ELECT	22MF	20%	25V
C63B	1-124-282-00	ELECT	22MF	20%	25V
C64	1-162-288-31	CERAMIC	330PF	10%	50V
C65	1-136-273-91	FILM	75PF	5%	630V
C67	1-162-209-31	CERAMIC	27PF	5%	50V
C68A	1-162-217-31	CERAMIC	56PF	5%	50V
C68B	1-162-217-31	CERAMIC	56PF	5%	50V
C81A	1-126-101-11	ELECT	100MF	20%	16V
C81B	1-126-101-11	ELECT	100MF	20%	16V
C82A	1-126-101-11	ELECT	100MF	20%	16V
C82B	1-126-101-11	ELECT	100MF	20%	16V
C83	1-124-499-11	ELECT	1MF	20%	50V
C84	1-124-925-11	ELECT	2.2MF	20%	50V
C85	1-130-480-00	MYLAR	0.0056MF	5%	50V
C86	1-130-476-00	MYLAR	0.0027MF	5%	50V
C87	1-130-476-00	MYLAR	0.0027MF	5%	50V
C88	1-136-562-11	FILM	0.0082MF	5%	630V
C89	1-136-554-11	FILM	0.0018MF	5%	630V
C90	1-136-553-11	FILM	0.0015MF	5%	630V
C101	1-124-925-11	ELECT	2.2MF	20%	50V
C102	1-162-294-31	CERAMIC	0.001MF	10%	50V
C103	1-124-443-00	ELECT	100MF	20%	10V
C104	1-123-875-11	ELECT	10MF	20%	50V
C105	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C106	1-136-162-00	FILM	0.056MF	5%	50V
C107	1-123-875-11	ELECT	10MF	20%	50V
C108	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C109	1-130-479-00	MYLAR	0.0047MF	5%	50V
C110	1-136-173-00	FILM	0.47MF	5%	50V
C111	1-136-167-00	FILM	0.15MF	5%	50V
C112	1-136-155-00	FILM	0.015MF	5%	50V
C113	1-136-169-00	FILM	0.22MF	5%	50V
C114	1-136-163-00	FILM	0.068MF	5%	50V
C115	1-136-161-00	FILM	0.047MF	5%	50V
C116	1-130-481-00	MYLAR	0.0068MF	5%	50V
C117	1-136-153-00	FILM	0.01MF	5%	50V
C118	1-124-927-11	ELECT	4.7MF	20%	50V
C119	1-136-169-00	FILM	0.22MF	5%	50V
C120	1-124-927-11	ELECT	4.7MF	20%	50V
C121	1-123-875-11	ELECT	10MF	20%	50V
C122	1-124-282-00	ELECT	22MF	20%	25V
C201	1-124-925-11	ELECT	2.2MF	20%	50V
C202	1-162-294-31	CERAMIC	0.001MF	10%	50V
C203	1-124-443-00	ELECT	100MF	20%	10V
C204	1-123-875-11	ELECT	10MF	20%	50V
C205	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C206	1-136-162-00	FILM	0.056MF	5%	50V
C207	1-123-875-11	ELECT	10MF	20%	50V
C208	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C209	1-130-479-00	MYLAR	0.0047MF	5%	50V
C210	1-136-173-00	FILM	0.47MF	5%	50V
C211	1-136-167-00	FILM	0.15MF	5%	50V
C212	1-136-155-00	FILM	0.015MF	5%	50V
C213	1-136-169-00	FILM	0.22MF	5%	50V
C214	1-136-163-00	FILM	0.068MF	5%	50V
C215	1-136-161-00	FILM	0.047MF	5%	50V
C216	1-130-481-00	MYLAR	0.0068MF	5%	50V
C217	1-136-153-00	FILM	0.01MF	5%	50V
C218	1-124-927-11	ELECT	4.7MF	20%	50V
C219	1-136-169-00	FILM	0.22MF	5%	50V
C220	1-124-927-11	ELECT	4.7MF	20%	50V
C221	1-123-875-11	ELECT	10MF	20%	50V
C222	1-124-282-00	ELECT	22MF	20%	25V
C301	1-123-875-11	ELECT	10MF	20%	50V
C302	1-123-875-11	ELECT	10MF	20%	50V
C305	1-124-477-11	ELECT	47MF	20%	25V
C306	1-124-477-11	ELECT	47MF	20%	25V
C307	1-124-120-11	ELECT	220MF	20%	16V

Ref.No.	Part No.	Description			
C308	1-124-120-11	ELECT	220MF	20%	16V
C309	1-123-875-11	ELECT	10MF	20%	50V
C310	1-123-875-11	ELECT	10MF	20%	50V
C311	1-124-443-00	ELECT	100MF	20%	10V
C312	1-126-233-11	ELECT	22MF	20%	50V
C313	1-123-875-11	ELECT	10MF	20%	50V
C314	1-123-875-11	ELECT	10MF	20%	50V
C315	1-124-499-11	ELECT	1MF	20%	50V
C316	1-124-902-00	ELECT	0.47MF	20%	50V
C317	1-162-217-31	CERAMIC	56PF	5%	50V
C318	1-136-157-00	FILM	0.022MF	5%	50V
C319	1-124-925-11	ELECT	2.2MF	20%	50V
C320	1-124-925-11	ELECT	2.2MF	20%	50V
C321	1-124-927-11	ELECT	4.7MF	20%	50V
C701	1-164-159-11	CERAMIC	0.1MF		50V
C702	1-164-159-11	CERAMIC	0.1MF		50V
C703	1-124-563-11	ELECT	2200MF	20%	25V
C704	1-124-480-11	ELECT	470MF	20%	25V
C705	1-124-120-11	ELECT	220MF	20%	16V
C706	1-124-360-00	ELECT	1000MF	20%	16V
C707	1-124-477-11	ELECT	47MF	20%	25V
C708	1-124-472-11	ELECT	470MF	20%	10V
C709	1-164-159-11	CERAMIC	0.1MF		50V
C710	1-164-159-11	CERAMIC	0.1MF		50V
C711	1-124-472-11	ELECT	470MF	20%	10V
C712	1-164-159-11	CERAMIC	0.1MF		50V
C713	1-164-159-11	CERAMIC	0.1MF		50V
C714	1-124-472-11	ELECT	470MF	20%	10V
C715	1-124-499-11	ELECT	1MF	20%	50V
C716	1-124-482-11	ELECT	33MF	20%	25V
C717	1-162-294-31	CERAMIC	0.001MF	10%	50V
C801	1-161-494-00	CERAMIC	0.022MF		25V
C802	1-161-494-00	CERAMIC	0.022MF		25V
C803	1-124-443-00	ELECT	100MF	20%	10V
C804	1-161-494-00	CERAMIC	0.022MF		25V
C805	1-161-494-00	CERAMIC	0.022MF		25V
C806	1-162-199-31	CERAMIC	10PF	5%	50V
C807	1-162-199-31	CERAMIC	10PF	5%	50V
C808	1-162-199-31	CERAMIC	10PF	5%	50V
C809	1-126-176-11	ELECT	220MF	20%	10V
C810	1-124-925-11	ELECT	2.2MF	20%	50V
C811	1-124-927-11	ELECT	4.7MF	20%	50V
C812	1-124-925-11	ELECT	2.2MF	20%	50V
C813	1-164-159-11	CERAMIC	0.1MF		50V
C814	1-162-294-31	CERAMIC	0.001MF	10%	50V
CNP11A	*1-564-501-11	PIN, CONNECTOR 8P			
CNP11B	*1-506-615-11	PIN, CONNECTOR 9P			
CNP12A	*1-564-337-00	PIN, CONNECTOR 3P			
CNP12B	*1-564-337-61	PIN, CONNECTOR 3P			
CNP13A	*1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P			
CNP13B	*1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P			
CNP81A	*1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P			
CNP81B	*1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P			
CNP82A	*1-564-339-00	PIN, CONNECTOR 5P			
CNP82B	*1-564-339-61	PIN, CONNECTOR 5P			

Ref.No.	Part No.	Description	
CNP83	*1-564-338-61	PIN, CONNECTOR 4P	
CNP84	*1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P	
CNP301	*1-565-291-11	SOCKET, CONNECTOR 13P	
CNP801	*1-564-338-00	PIN, CONNECTOR 4P	
CNP802	*1-564-337-00	PIN, CONNECTOR 3P	
CNP803	*1-564-338-61	PIN, CONNECTOR 4P	
CNP804	*1-564-338-71	PIN, CONNECTOR 4P	
D11A	8-719-107-94	DIODE 1SS132	
D11B	8-719-107-94	DIODE 1SS132	
D81	8-719-107-94	DIODE 1SS132	
D301	8-719-000-26	DIODE US1060M	
D304	8-719-000-26	DIODE US1060M	
D701	8-719-200-82	DIODE 11ES2	
D702	8-719-200-82	DIODE 11ES2	
D703	8-719-200-82	DIODE 11ES2	
D704	8-719-200-82	DIODE 11ES2	
D705	8-719-000-26	DIODE US1060M	
D706	8-719-000-26	DIODE US1060M	
D707	8-719-200-82	DIODE 11ES2	
D708	8-719-200-82	DIODE 11ES2	
D709	8-719-933-77	DIODE MZS12B2L	
D710	8-719-000-69	DIODE UZL-6H2	
D711	1-807-913-21	DIODE 11EQS04	
D801	8-719-200-82	DIODE 11ES2	
D802	8-719-200-82	DIODE 11ES2	
D803	8-719-200-82	DIODE 11ES2	
D804	8-719-000-26	DIODE US1060M	
D805	8-719-000-26	DIODE US1060M	
D806	8-719-942-15	DIODE MPG3877S	
D807	8-719-942-15	DIODE MPG3877S	
D808	8-719-942-15	DIODE MPG3877S	
D809	8-719-942-15	DIODE MPG3877S	
D810	8-719-942-14	DIODE MAY3877S	
D811	8-719-942-17	DIODE MPR3877S	
D812	8-719-942-15	DIODE MPG3877S	
D813	8-719-942-17	DIODE MPR3877S	
D814	8-719-942-17	DIODE MPR3877S	
HP11	A-2108-129-A	(DECK A)...CHASSIS ASSY, HEAD	
HRP11 HE11	A-2108-130-A	(DECK B)...CHASSIS ASSY, HEAD	
IC81A	8-759-111-44	IC UPC4570C-1	
IC81B	8-759-111-44	IC UPC4570C-1	
IC301	8-759-939-73	IC BA3308	
IC302	8-752-018-70	IC CX20187	
IC303	8-752-033-61	IC CXA1198AP	
IC304	8-759-208-06	IC TC4051BPHB	
IC305	8-759-040-53	IC MC14053BCP	
IC306	8-759-945-58	IC RC4558P	
IC701	8-759-604-86	IC M5F7807	
IC702	8-759-604-90	IC M5F7907	
IC801	8-759-632-54	IC M50964-212SP	
L41	1-410-780-11	INDUCTOR	27MMH
L61	1-410-780-11	INDUCTOR	27MMH
L801	1-408-080-00	INDUCTOR	100UH

Ref.No.	Part No.	Description			
LPF101	1-236-087-11	FILTER, LOW PASS			
LPF201	1-236-087-11	FILTER, LOW PASS			
M11A	X-3343-408-1	(DECK A)...MOTOR ASSY			
M11B	X-3343-408-1	(DECK B)...MOTOR ASSY			
PM11A	1-454-456-11	(DECK A)...SOLENOID, PLUNGER			
PM11B	1-454-456-11	(DECK B)...SOLENOID, PLUNGER			
Q11A	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q11B	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q12A	8-719-939-23	PHOTO TRANSISTOR GP2S09-C			
Q12B	8-719-939-23	PHOTO TRANSISTOR GP2S09-C			
Q81	8-729-111-29	TRANSISTOR 2SD1388			
Q82	8-729-100-13	TRANSISTOR 2SC2001			
Q83	8-729-100-13	TRANSISTOR 2SC2001			
Q101	8-729-900-74	TRANSISTOR DTC143TS			
Q102	8-729-178-54	TRANSISTOR 2SC2603			
Q103	8-729-900-74	TRANSISTOR DTC143TS			
Q201	8-729-900-74	TRANSISTOR DTC143TS			
Q202	8-729-178-54	TRANSISTOR 2SC2603			
Q203	8-729-900-74	TRANSISTOR DTC143TS			
Q301	8-729-900-80	TRANSISTOR DTC114ES			
Q302	8-729-900-61	TRANSISTOR DTA114ES			
Q303	8-729-900-74	TRANSISTOR DTC143TS			
Q304	8-729-173-38	TRANSISTOR 2SA733			
Q305	8-729-900-61	TRANSISTOR DTA114ES			
Q306	8-729-900-61	TRANSISTOR DTA114ES			
Q307	8-729-900-61	TRANSISTOR DTA114ES			
Q308	8-729-900-61	TRANSISTOR DTA114ES			
Q701	8-729-178-54	TRANSISTOR 2SC2603			
Q702	8-729-904-27	TRANSISTOR 2SD1761			
Q703	8-729-178-54	TRANSISTOR 2SC2603			
Q704	8-729-904-27	TRANSISTOR 2SD1761			
Q705	8-729-178-54	TRANSISTOR 2SC2603			
Q706	8-729-178-54	TRANSISTOR 2SC2603			
Q801	8-729-173-38	TRANSISTOR 2SA733			
Q802	8-729-801-83	TRANSISTOR 2SB1013			
Q803	8-729-801-83	TRANSISTOR 2SB1013			
Q804	8-729-801-83	TRANSISTOR 2SB1013			
Q805	8-729-801-83	TRANSISTOR 2SB1013			
Q806	8-729-801-83	TRANSISTOR 2SB1013			
Q807	8-729-900-61	TRANSISTOR DTA114ES			
Q808	8-729-900-61	TRANSISTOR DTA114ES			
Q811	8-729-173-38	TRANSISTOR 2SA733			
Q812	8-729-173-38	TRANSISTOR 2SA733			
Q813	8-729-173-38	TRANSISTOR 2SA733			
Q814	8-729-900-80	TRANSISTOR DTC114ES			
Q816	8-729-173-38	TRANSISTOR 2SA733			
R11B	1-247-834-11	CARBON	1.3K	5%	1/4W
R12B	1-249-414-11	CARBON	560	5%	1/4W
R13B	1-247-818-11	CARBON	300	5%	1/4W
R14A	1-249-408-11	CARBON	180	5%	1/4W
R14B	1-249-408-11	CARBON	180	5%	1/4W
R17A	1-249-437-11	CARBON	47K	5%	1/4W
R17B	1-249-437-11	CARBON	47K	5%	1/4W
R18A	1-249-437-11	CARBON	47K	5%	1/4W
R18B	1-249-437-11	CARBON	47K	5%	1/4W

Ref.No.	Part No.	Description				
R41A	1-247-881-00	CARBON	120K	5%	1/4W	
R41B	1-247-881-00	CARBON	120K	5%	1/4W	
R42A	1-249-405-11	CARBON	100	5%	1/4W	
R42B	1-249-405-11	CARBON	100	5%	1/4W	
R43A	1-247-882-11	CARBON	130K	5%	1/4W	
R43B	1-247-882-11	CARBON	130K	5%	1/4W	
R44A	1-249-426-11	CARBON	5.6K	5%	1/4W	
R44B	1-249-426-11	CARBON	5.6K	5%	1/4W	
R45	1-249-430-11	CARBON	12K	5%	1/4W	
R61A	1-247-881-00	CARBON	120K	5%	1/4W	
R61B	1-247-881-00	CARBON	120K	5%	1/4W	
R62A	1-249-405-11	CARBON	100	5%	1/4W	
R62B	1-249-405-11	CARBON	100	5%	1/4W	
R63A	1-247-882-11	CARBON	130K	5%	1/4W	
R63B	1-247-882-11	CARBON	130K	5%	1/4W	
R64A	1-249-426-11	CARBON	5.6K	5%	1/4W	
R64B	1-249-426-11	CARBON	5.6K	5%	1/4W	
R65	1-249-430-11	CARBON	12K	5%	1/4W	
R81A	1-249-409-11	CARBON	220	5%	1/4W	
R81B	1-249-409-11	CARBON	220	5%	1/4W	
R82A	1-249-409-11	CARBON	220	5%	1/4W	
R82B	1-249-409-11	CARBON	220	5%	1/4W	
R83	1-249-429-11	CARBON	10K	5%	1/4W	
R84	⚠.1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R85	1-249-435-11	CARBON	33K	5%	1/4W	
R86	1-249-435-11	CARBON	33K	5%	1/4W	
R101	1-247-866-11	CARBON	30K	5%	1/4W	
R102	1-249-417-11	CARBON	1K	5%	1/4W	
R103	1-249-437-11	CARBON	47K	5%	1/4W	
R104	1-249-417-11	CARBON	1K	5%	1/4W	
R105	1-249-423-11	CARBON	3.3K	5%	1/4W	
R106	1-249-426-11	CARBON	5.6K	5%	1/4W	
R107	1-247-834-11	CARBON	1.3K	5%	1/4W	
R108	1-249-418-11	CARBON	1.2K	5%	1/4W	
R109	1-249-423-11	CARBON	3.3K	5%	1/4W	
R110	1-247-834-11	CARBON	1.3K	5%	1/4W	
R111	1-247-887-00	CARBON	220K	5%	1/4W	
R112	1-249-417-11	CARBON	1K	5%	1/4W	
R113	1-249-441-11	CARBON	100K	5%	1/4W	
R114	1-249-441-11	CARBON	100K	5%	1/4W	
R115	1-249-424-11	CARBON	3.9K	5%	1/4W	
R116	1-247-842-11	CARBON	3K	5%	1/4W	
R117	1-247-822-11	CARBON	430	5%	1/4W	
R118	1-249-427-11	CARBON	6.8K	5%	1/4W	
R119	1-249-415-11	CARBON	680	5%	1/4W	
R120	1-249-429-11	CARBON	10K	5%	1/4W	
R121	1-249-428-11	CARBON	8.2K	5%	1/4W	
R122	1-249-421-11	CARBON	2.2K	5%	1/4W	
R123	1-249-429-11	CARBON	10K	5%	1/4W	
R124	1-249-417-11	CARBON	1K	5%	1/4W	
R125	1-249-420-11	CARBON	1.8K	5%	1/4W	
R126	1-247-842-11	CARBON	3K	5%	1/4W	
R127	1-249-411-11	CARBON	330	5%	1/4W	
R128	1-249-441-11	CARBON	100K	5%	1/4W	
R201	1-247-866-11	CARBON	30K	5%	1/4W	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No.	Part No.	Description				
R202	1-249-417-11	CARBON	1K	5%	1/4W	
R203	1-249-437-11	CARBON	47K	5%	1/4W	
R204	1-249-417-11	CARBON	1K	5%	1/4W	
R205	1-249-423-11	CARBON	3.3K	5%	1/4W	
R206	1-249-426-11	CARBON	5.6K	5%	1/4W	
R207	1-247-834-11	CARBON	1.3K	5%	1/4W	
R208	1-249-418-11	CARBON	1.2K	5%	1/4W	
R209	1-249-423-11	CARBON	3.3K	5%	1/4W	
R210	1-247-834-11	CARBON	1.3K	5%	1/4W	
R211	1-247-887-00	CARBON	220K	5%	1/4W	
R212	1-249-417-11	CARBON	1K	5%	1/4W	
R213	1-249-441-11	CARBON	100K	5%	1/4W	
R214	1-249-441-11	CARBON	100K	5%	1/4W	
R215	1-249-424-11	CARBON	3.9K	5%	1/4W	
R216	1-247-842-11	CARBON	3K	5%	1/4W	
R217	1-247-822-11	CARBON	430	5%	1/4W	
R218	1-249-427-11	CARBON	6.8K	5%	1/4W	
R219	1-249-415-11	CARBON	680	5%	1/4W	
R220	1-249-429-11	CARBON	10K	5%	1/4W	
R221	1-249-428-11	CARBON	8.2K	5%	1/4W	
R222	1-249-421-11	CARBON	2.2K	5%	1/4W	
R223	1-249-429-11	CARBON	10K	5%	1/4W	
R224	1-249-417-11	CARBON	1K	5%	1/4W	
R225	1-249-420-11	CARBON	1.8K	5%	1/4W	
R226	1-247-842-11	CARBON	3K	5%	1/4W	
R227	1-249-411-11	CARBON	330	5%	1/4W	
R228	1-249-441-11	CARBON	100K	5%	1/4W	
R301 ⚠.	1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R302	1-249-429-11	CARBON	10K	5%	1/4W	
R303	1-249-423-11	CARBON	3.3K	5%	1/4W	
R304	1-247-834-11	CARBON	1.3K	5%	1/4W	
R305	1-249-435-11	CARBON	33K	5%	1/4W	
R306	1-249-433-11	CARBON	22K	5%	1/4W	
R307	1-249-409-11	CARBON	220	5%	1/4W	
R308	1-249-409-11	CARBON	220	5%	1/4W	
R309	1-249-429-11	CARBON	10K	5%	1/4W	
R310	1-249-417-11	CARBON	1K	5%	1/4W	
R311	1-259-880-11	CARBON	2.2M	5%	1/4W	
R313	1-249-405-11	CARBON	100	5%	1/4W	
R314	1-249-409-11	CARBON	220	5%	1/4W	
R315	1-249-441-11	CARBON	100K	5%	1/4W	
R316	1-249-441-11	CARBON	100K	5%	1/4W	
R317	1-249-411-11	CARBON	330	5%	1/4W	
R318	1-249-437-11	CARBON	47K	5%	1/4W	
R319	1-215-469-00	METAL	100K	1%	1/6W	
R321	1-249-441-11	CARBON	100K	5%	1/4W	
R322	1-249-429-11	CARBON	10K	5%	1/4W	
R323	1-249-429-11	CARBON	10K	5%	1/4W	
R325	1-247-864-11	CARBON	24K	5%	1/4W	
R332	1-247-862-11	CARBON	20K	5%	1/4W	
R333	1-247-868-11	CARBON	36K	5%	1/4W	
R334	1-249-434-11	CARBON	27K	5%	1/4W	
R335	1-247-874-11	CARBON	62K	5%	1/4W	
R336	1-247-870-11	CARBON	43K	5%	1/4W	
R337	1-247-881-00	CARBON	120K	5%	1/4W	
R338	1-249-437-11	CARBON	47K	5%	1/4W	
R339	1-247-872-11	CARBON	51K	5%	1/4W	
R340	1-249-437-11	CARBON	47K	5%	1/4W	
R341	1-249-438-11	CARBON	56K	5%	1/4W	
R342	1-249-437-11	CARBON	47K	5%	1/4W	
R343	1-247-881-00	CARBON	120K	5%	1/4W	
R344	1-247-872-11	CARBON	51K	5%	1/4W	
R345	1-247-874-11	CARBON	62K	5%	1/4W	
R346	1-249-434-11	CARBON	27K	5%	1/4W	
R347	1-249-437-11	CARBON	47K	5%	1/4W	
R348	1-249-438-11	CARBON	56K	5%	1/4W	
R349	1-247-880-11	CARBON	110K	5%	1/4W	
R350	1-249-435-11	CARBON	33K	5%	1/4W	
R351	1-249-435-11	CARBON	33K	5%	1/4W	
R352	1-249-439-11	CARBON	68K	5%	1/4W	
R353	1-247-885-00	CARBON	180K	5%	1/4W	
R354	1-247-874-11	CARBON	62K	5%	1/4W	
R355	1-249-441-11	CARBON	100K	5%	1/4W	
R356	1-249-439-11	CARBON	68K	5%	1/4W	
R357	1-249-437-11	CARBON	47K	5%	1/4W	
R358	1-247-880-11	CARBON	110K	5%	1/4W	
R359	1-247-885-00	CARBON	180K	5%	1/4W	
R360	1-247-874-11	CARBON	62K	5%	1/4W	
R361	1-247-883-00	CARBON	150K	5%	1/4W	
R362	1-249-439-11	CARBON	68K	5%	1/4W	
R363	1-249-438-11	CARBON	56K	5%	1/4W	
R364	1-249-437-11	CARBON	47K	5%	1/4W	
R365	1-247-876-11	CARBON	75K	5%	1/4W	
R366	1-247-880-11	CARBON	110K	5%	1/4W	
R367	1-247-887-00	CARBON	220K	5%	1/4W	
R368	1-247-887-00	CARBON	220K	5%	1/4W	
R369	1-247-887-00	CARBON	220K	5%	1/4W	
R370	1-249-441-11	CARBON	100K	5%	1/4W	
R371	1-249-429-11	CARBON	10K	5%	1/4W	
R372	1-249-428-11	CARBON	8.2K	5%	1/4W	
R373	1-249-423-11	CARBON	3.3K	5%	1/4W	
R374	1-249-441-11	CARBON	100K	5%	1/4W	
R375	1-249-441-11	CARBON	100K	5%	1/4W	
R376	1-249-417-11	CARBON	1K	5%	1/4W	
R377	1-249-429-11	CARBON	10K	5%	1/4W	
R378	1-249-441-11	CARBON	100K	5%	1/4W	
R379	1-249-417-11	CARBON	1K	5%	1/4W	
R701 ⚠.	1-219-108-11	FUSIBLE	1.5	5%	1W	F
R702	1-249-423-11	CARBON	3.3K	5%	1/4W	
R703	1-249-417-11	CARBON	1K	5%	1/4W	
R704 ⚠.	1-219-109-11	FUSIBLE	3.9	5%	1W	F
R705 ⚠.	1-219-110-11	FUSIBLE	150	5%	1W	F
R706 ⚠	1-219-110-11	FUSIBLE	150	5%	1W	F
R707	1-249-425-11	CARBON	4.7K	5%	1/4W	
R708	1-249-417-11	CARBON	1K	5%	1/4W	
R709	1-249-419-11	CARBON	1.5K	5%	1/4W	
R710	1-249-428-11	CARBON	8.2K	5%	1/4W	
R711	1-249-420-11	CARBON	1.8K	5%	1/4W	
R712	1-249-431-11	CARBON	15K	5%	1/4W	
R713	1-249-399-11	CARBON	33	5%	1/4W	
R800	1-249-417-11	CARBON	1K	5%	1/4W	
R801	1-249-429-11	CARBON	10K	5%	1/4W	
R802	1-247-903-00	CARBON	1M	5%	1/4W	
R803	1-249-420-11	CARBON	1.8K	5%	1/4W	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description			
R804	1-249-425-11	CARBON	4.7K	5%	1/4W
R805	1-249-417-11	CARBON	1K	5%	1/4W
R806	1-249-433-11	CARBON	22K	5%	1/4W
R807	1-249-421-11	CARBON	2.2K	5%	1/4W
R808	1-249-425-11	CARBON	4.7K	5%	1/4W
R809	1-249-393-11	CARBON	10	5%	1/4W
R810	1-249-420-11	CARBON	1.8K	5%	1/4W
R811	1-249-425-11	CARBON	4.7K	5%	1/4W
R812	1-249-421-11	CARBON	2.2K	5%	1/4W
R813	1-249-425-11	CARBON	4.7K	5%	1/4W
R814	1-249-393-11	CARBON	10	5%	1/4W
R815	1-249-420-11	CARBON	1.8K	5%	1/4W
R816	1-249-425-11	CARBON	4.7K	5%	1/4W
R817	1-249-417-11	CARBON	1K	5%	1/4W
R818	1-249-421-11	CARBON	2.2K	5%	1/4W
R819	1-249-421-11	CARBON	2.2K	5%	1/4W
R820	1-249-421-11	CARBON	2.2K	5%	1/4W
R824	1-249-425-11	CARBON	4.7K	5%	1/4W
R825	1-249-425-11	CARBON	4.7K	5%	1/4W
R826	1-249-425-11	CARBON	4.7K	5%	1/4W
R827	1-249-425-11	CARBON	4.7K	5%	1/4W
R828	1-249-437-11	CARBON	47K	5%	1/4W
R829	1-249-425-11	CARBON	4.7K	5%	1/4W
R830	1-249-437-11	CARBON	47K	5%	1/4W
R831	1-249-425-11	CARBON	4.7K	5%	1/4W
R832	1-249-437-11	CARBON	47K	5%	1/4W
R833	1-249-429-11	CARBON	10K	5%	1/4W
R834	1-247-895-00	CARBON	470K	5%	1/4W
R835	1-247-895-00	CARBON	470K	5%	1/4W
R836	1-249-413-11	CARBON	470	5%	1/4W
R837	1-249-413-11	CARBON	470	5%	1/4W
R839	1-249-407-11	CARBON	150	5%	1/4W
R840	1-249-407-11	CARBON	150	5%	1/4W
R841	1-249-407-11	CARBON	150	5%	1/4W
R842	1-249-407-11	CARBON	150	5%	1/4W
R843	1-249-407-11	CARBON	150	5%	1/4W
R844	1-249-411-11	CARBON	330	5%	1/4W
R845	1-249-413-11	CARBON	470	5%	1/4W
R846	1-249-428-11	CARBON	8.2K	5%	1/4W
R847	1-249-429-11	CARBON	10K	5%	1/4W
R848	1-249-429-11	CARBON	10K	5%	1/4W
R849	1-249-412-11	CARBON	390	5%	1/4W
R850	1-249-411-11	CARBON	330	5%	1/4W
R852	1-249-412-11	CARBON	390	5%	1/4W
R853	1-249-411-11	CARBON	330	5%	1/4W
R854	1-249-415-11	CARBON	680	5%	1/4W
R855	1-249-417-11	CARBON	1K	5%	1/4W
R856	1-249-426-11	CARBON	5.6K	5%	1/4W
R857	1-249-430-11	CARBON	12K	5%	1/4W
R858	1-249-407-11	CARBON	150	5%	1/4W
R859	1-249-409-11	CARBON	220	5%	1/4W
R860	1-249-411-11	CARBON	330	5%	1/4W
R861	1-249-413-11	CARBON	470	5%	1/4W
R862	1-247-832-11	CARBON	1.1K	5%	1/4W
R863	1-249-417-11	CARBON	1K	5%	1/4W
R864	1-249-420-11	CARBON	1.8K	5%	1/4W
R865	1-249-424-11	CARBON	3.9K	5%	1/4W
R866	1-249-430-11	CARBON	12K	5%	1/4W
R867	1-249-425-11	CARBON	4.7K	5%	1/4W
RV41A	1-228-989-00	RES, ADJ, CARBON 470			
RV41B	1-228-989-00	RES, ADJ, CARBON 470			
RV42	1-230-500-11	RES, ADJ, CARBON 220K			
RV61A	1-228-989-00	RES, ADJ, CARBON 470			
RV61B	1-228-989-00	RES, ADJ, CARBON 470			
RV62	1-230-500-11	RES, ADJ, CARBON 220K			
RV101	1-228-995-00	RES, ADJ, CARBON 22K			
RV201	1-228-995-00	RES, ADJ, CARBON 22K			
RY81	1-515-614-11	RELAY			
S11A	1-571-281-21	SWITCH, LEAF (HALF DET)			
S11B	1-571-281-21	SWITCH, LEAF (HALF DET)			
S12B	1-571-281-21	SWITCH, LEAF (ERASE PROOF-SIDE A)			
S13B	1-571-281-21	SWITCH, LEAF (ERASE PROOF-SIDE B)			
S14A	1-571-281-21	SWITCH, LEAF (CrO2)			
S14B	1-571-281-21	SWITCH, LEAF (CrO2)			
S15B	1-571-281-21	SWITCH, LEAF (METAL)			
S301	1-554-798-31	SWITCH, SLIDE (ISS)			
S302	1-570-835-11	SWITCH, SLIDE (DOLBY OFF/B/C)			
S801	1-554-303-21	SWITCH, KEY BOARD (DECK A □)			
S802	1-554-303-21	SWITCH, KEY BOARD (DECK A ▷)			
S803	1-554-303-21	SWITCH, KEY BOARD (DECK A ◁)			
S804	1-554-303-21	SWITCH, KEY BOARD (DECK A ◁◁)			
S805	1-554-303-21	SWITCH, KEY BOARD (DECK A ▷▷)			
S806	1-554-303-21	SWITCH, KEY BOARD (DECK B □)			
S807	1-554-303-21	SWITCH, KEY BOARD (DECK B ‖)			
S808	1-554-303-21	SWITCH, KEY BOARD (DECK B ▷)			
S809	1-554-303-21	SWITCH, KEY BOARD (DECK B ◁)			
S810	1-554-303-21	SWITCH, KEY BOARD (DECK B ○)			
S811	1-554-303-21	SWITCH, KEY BOARD (DECK B ◁◁)			
S812	1-554-303-21	SWITCH, KEY BOARD (DECK B ▷▷)			
S813	1-554-303-21	SWITCH, KEY BOARD (DECK B ●)			
S814	1-554-303-21	SWITCH, KEY BOARD (AMS/BLANK SKIP)			
S815	1-554-303-21	SWITCH, KEY BOARD(DUBBING SPEED:HIGH)			
S816	1-554-303-21	SWITCH, KEY BOARD(DUBBING SPEED:NORMAL)			
S818	1-570-835-11	SWITCH, SLIDE (DIRECTION MODE)			
SPK101	1-235-186-00	ENCAPSULATED COMPONENT			
SPK201	1-235-186-00	ENCAPSULATED COMPONENT			
T81	1-433-337-11	TRANSFORMER, BIAS OSCILLATION			
X801	1-577-082-31	OSCILLATOR, CERAMIC (4MHz)			

ST-818M

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model

SONY
TIMER CONTROL
TIMER SET
SLEEP
CLOCK
30 STATION RANDOM PRESET
SHIFT
1
2
3
4
5
6
7
8
9
0
TIMER/TUNER
STEREO/MUTING
MEMORY SCAN
TIME/FREQUENCY
PRESET/TUNING
BAND
MEMORY
NEXT
FM-AM TIMER TUNER

SPECIFICATIONS

System	FM stereo, FM/AM superheterodyne tuner

FM tuner section

Tuning range	87.5-108 MHz
Antenna terminals	75 ohms unbalanced/300 ohm balanced
Intermediate frequency	10.7 MHz

MW/LW tuner section (for the AEP and UK models)

	MW	LW
Tuning range	531-1602 kHz (except Italian model) 522 - 1611 kHz (for the Italian model)	153 - 281 kHz (except Italian model) 144 - 288 kHz (for the Italian model)
Antenna	AM loop antenna (External antenna terminals)	

MW tuner section (for US, Canadian model)

	MW
Tuning range	530 - 1710 kHz
Antenna	AM loop antenna (External antenna terminals)

Design and specifications subject to change without notice.

MICROFILM

FM-AM TIMER TUNER

SONY®

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

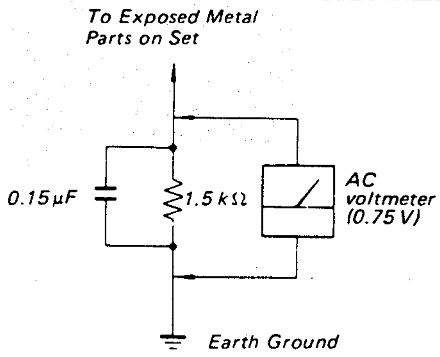


Fig. A. Using an AC voltmeter to check AC leakage.

- **Power supply for service**

Since this machine has no power source in itself, the power is supplied form AMP TA-818 or TA-818M used for this series.
As shown in the following table, this machine requires 4types of voltage, and supplying each type of voltage separately makes complicated connections.
Accordingly, make connection with TA-818/818M at time of service, such as electrifying repair.

AC 3.9V	FL-tube filament voltage
DC −24V	Display controller IC701, grid voltage
DC 5V	Display controller IC701, V_{CC}
DC 13V	PLL control voltage

- **Service mode for checking the timer ON/OFF**

1) Connect with AMP TA-818/818M, and set the power switch of TA-818/818M to the state of STANDBY.
2) Set the time of tuner to a proper time (any time).
3) Press 3 switches simultaneously, namely, PRESET ^{1}○, ^{6}○ and ○ BAND.
4) FL-tube display

All lamps lighting
↓ 1 sec.
10 : 23
↓ 0.5 sec.
10 : 24
↓ 0.5 sec.
Last channel ⟶ POWER ON
↓ 3 sec.
0 : 00 ⟶ POWER ON

5) End

—Caution for Service—

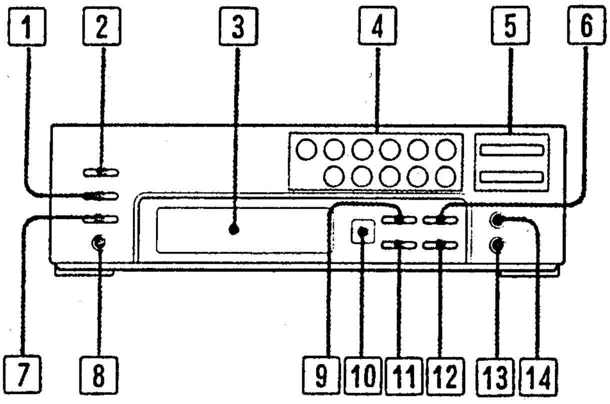
- **Reset of IC701**

  The display controller IC701 is reset by short-circuiting both edges of C702 (0.47μF) while power OFF and discharging electricity.
  After resetting, the following frequencies are pre-set to the memory.
  When the repair is completed, return the memory to the preceding state (content).

FM	AM/MW			LW	
	US, Canadian model	AEP, UK model	Italian model	AEP, UK model	Italian model
A1 87.5 MHz	A6 530 kHz	A6 531 kHz	A6 522 kHz	B1 153 kHz	B1 144 kHz
A2 88.0 MHz	A7 620 kHz	A7 603 kHz	A7 603 kHz	B2 171 kHz	B2 162 kHz
A3 98.0 MHz	A8 1050 kHz	A8 999 kHz	A8 999 kHz	B3 216 kHz	B3 216 kHz
A4 100.0 MHz	A9 1490 kHz	A9 1404 kHz	A9 1404 kHz	B4 261 kHz	B4 270 kHz
A5 108.0 MHz	A0 1710 kHz	A0 1602 kHz	A0 1611 kHz	B5 281 kHz	B5 288 kHz

SECTION 1
GENERAL

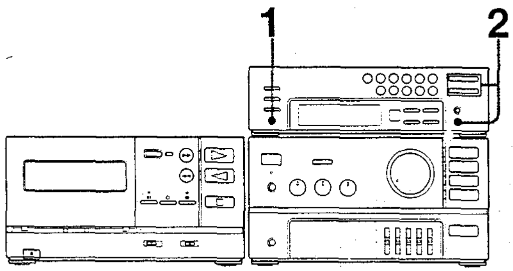
1-1. PARTS IDENTIFICATION



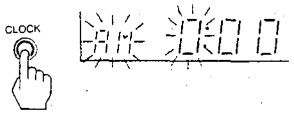
Tuner Section

1 TIMER SET button
2 TIMER CONTROL switch
3 Display window
4 PRESET STATION buttons
5 + / - buttons
6 MEMORY SCAN button
7 SLEEP button
8 CLOCK button
9 STEREO/MUTING button
10 Remote sensor
Receives the remote-control signals.
11 TIME/FREQUENCY button
12 PRESET/TUNING button
13 MEMORY/NEXT button
14 BAND selector

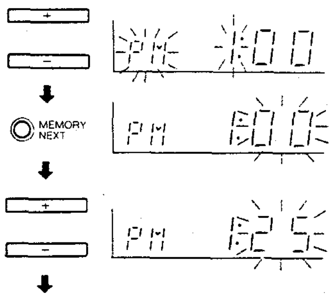
1-2. CLOCK SETTING



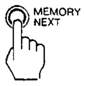
1



2 **Set the time. (e.g. PM 1:25)**
Ajuster l'heure. (Ex. 1:25 PM = après-midi)
Stellen Sie die Zeit ein. (Beispiel: 1:25 nachmittags)
Regolate l'orario. (Es. 1:25 PM)



Press MEMORY NEXT as soon as you hear the time signal.
Appuyer sur MEMORY NEXT dès que retentit un top horaire officiel.
Beim Zeitzeichen drücken Sie MEMORY NEXT.
Premete MEMORY NEXT in corrispondenza di un segnale orario.



The clock starts operating.
L'horloge commence alors à fonctionner.
Die Uhr beginnt zu laufen.
L'orologio inizia a funzionare.

← See illustrations on left for operation.

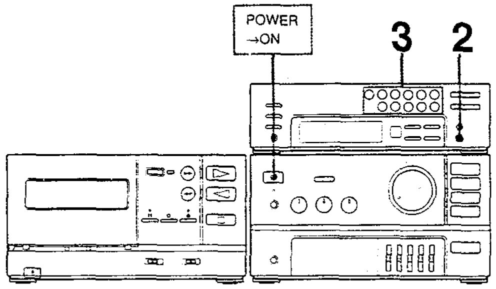
Information on the time

For the European model: 24-hour system "0:00" is midnight, and "12:00" is noon.
For the Canadian model: 12-hour system "AM 0:00" is midnight, and "PM 0:00" is noon.

When a power interruption occurs

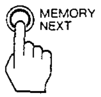
The time will blink and the clock will be delayed for the length of time of the power interruption. After the power is restored, the display must be reset to the proper time. (Timer setting is not cancelled by power interruption.)

1-3. STORING STATIONS IN THE MEMORY



1 **Tune in a desired station.**
Faire l'accord sur la station souhaitée.
Stimmen Sie auf den gewünschten Sender ab.
Sintonizzate la stazione desiderata.

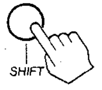
2



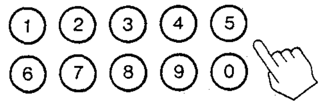
3 **Allot one of the following codes:**
Attribuer un des codes suivants:
Legen Sie einen der folgenden Codes fest:
Assegnate alla stazione da preselezionare uno dei seguenti codici:

A-1, A-2, •••, A-0,
B-1, •••, B-0,
C-1, •••, C-9, C-0

❶ First, select alphabet.
Choisir d'abord une lettre de l'alphabet.
Wählen Sie zuerst den Buchstaben.
Scegliete prima la lettera dell'alfabeto.



❷ Select number.
Choisir un chiffre.
Wählen Sie die Nummer.
Scegliete il numero.



4 **Repeat these steps for each station to be preset.**
Répéter ces démarches pour chacune des stations à prérégler.
Wiederholen Sie die obigen Schritte zum Abspeichern weiterer Sender.
Ripetete questi punti per ciascuna stazione da preselezionare.

The codes are denoted by a single letter (either A, B or C) followed by a digit number (1-9, 0). Therefore, there are 30 codes in total.

You can store a desired station on any of these codes.

The stored station can be recalled simply by entering its corresponding code.

← See illustrations on left for operation.

To tune into a Preset Station

Press SHIFT and the numeric button to select the desired code.

If you cannot store a station successfully
Press MEMORY again, and then enter the desired code.
Be sure to enter the code while the MEMORY indication is lit.

When you have pressed the wrong code
Press MEMORY and then enter the correct code.

Can a previously stored station be erased?
No. Erasing only is not possible, but storing a new station erases the previously stored one.

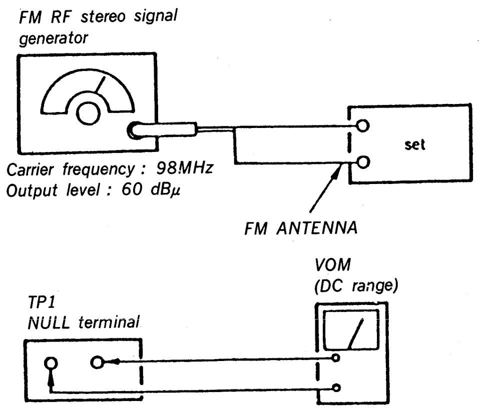
Important
If you leave the unit disconnected from the wall outlet for more than one month, stored stations may be erased from memory. In this case, store the stations again.

SECTION 2
ELECTRICAL ADJUSTMENTS

FM SECTION

• FM Discriminator Alignment (NULL check)

Setting :


FM RF stereo signal generator
set
Carrier frequency : 98MHz
Output level : 60 dBμ
FM ANTENNA
VOM
(DC range)
TP1
NULL terminal

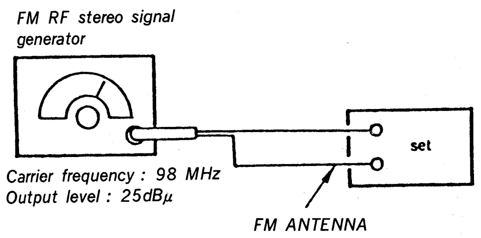
Procedure :

1. Tune the set to 98 MHz.
2. Adjust T21 for 0 V reading on the VOM.

Note : FM TUNING LEVEL adjustment should be made after FM discriminator alignment.

• FM TUNING LEVEL Adjustment

Setting :

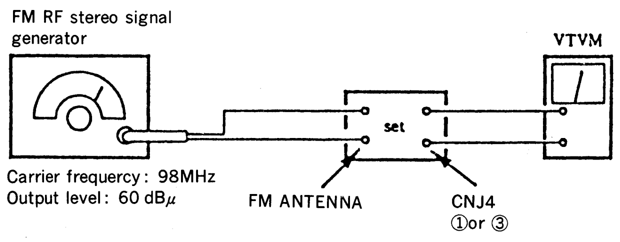

FM RF stereo signal generator
set
Carrier frequency : 98 MHz
Output level : 25dBμ
FM ANTENNA

Procedure :

1. Tune the set to 98 MHz.
2. Adjust RV24 so that the TUNED LED goes on.

• FM Stereo Separation Adjustment

Setting :


FM RF stereo signal generator
VTVM
set
Carrier frequency : 98MHz
Output level : 60 dBμ
FM ANTENNA
CNJ4
①or ③

Procedure :
Tune the set to 98 MHz

FM stereo Signal generator Output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV21 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV21 for minimum reading.

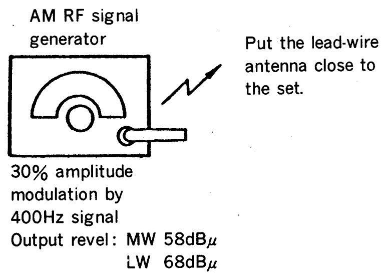
L-CH Stereo separation : Ⓐ-Ⓑ
R-CH Stereo separation : Ⓒ-Ⓓ

The separations of both channels should be equal.

AM SECTION

• MW/LW TUNING LEVEL Adjustment

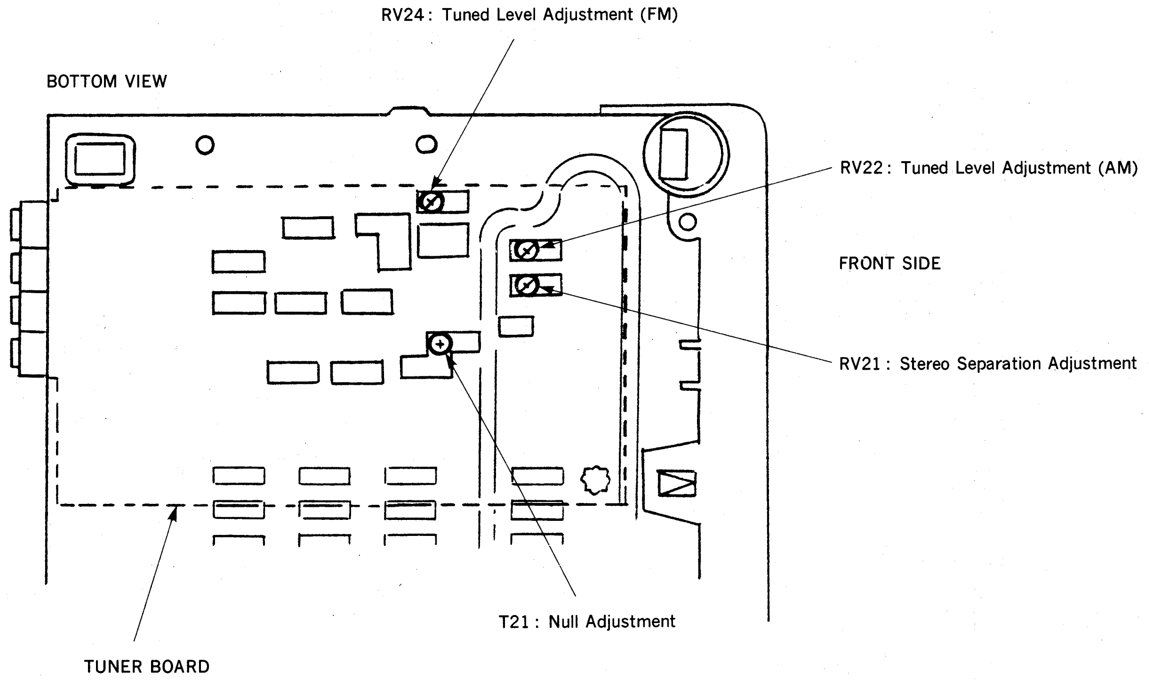
Setting :


AM RF signal generator
Put the lead-wire antenna close to the set.
30% amplitude modulation by 400Hz signal
Output revel : MW 58dBμ
LW 68dBμ

Procedure :

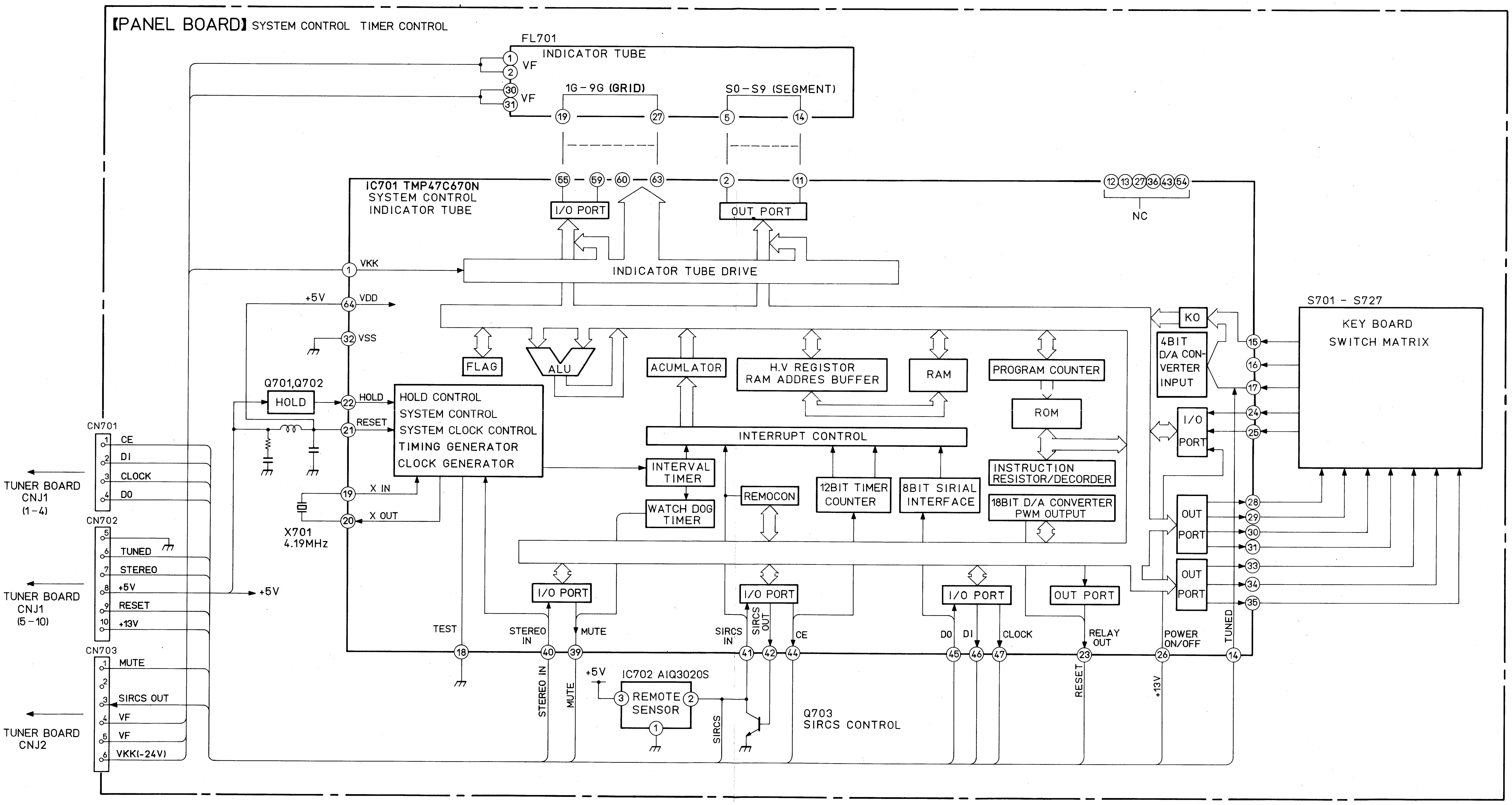
1. Tune the set to 1,490 kHz.
2. Adjust the RV22 so that the TUNED LED goes on.

[Parts Arrangement Diagram for Adjustments]


RV24 : Tuned Level Adjustment (FM)
BOTTOM VIEW
RV22 : Tuned Level Adjustment (AM)
FRONT SIDE
RV21 : Stereo Separation Adjustment
T21 : Null Adjustment
TUNER BOARD

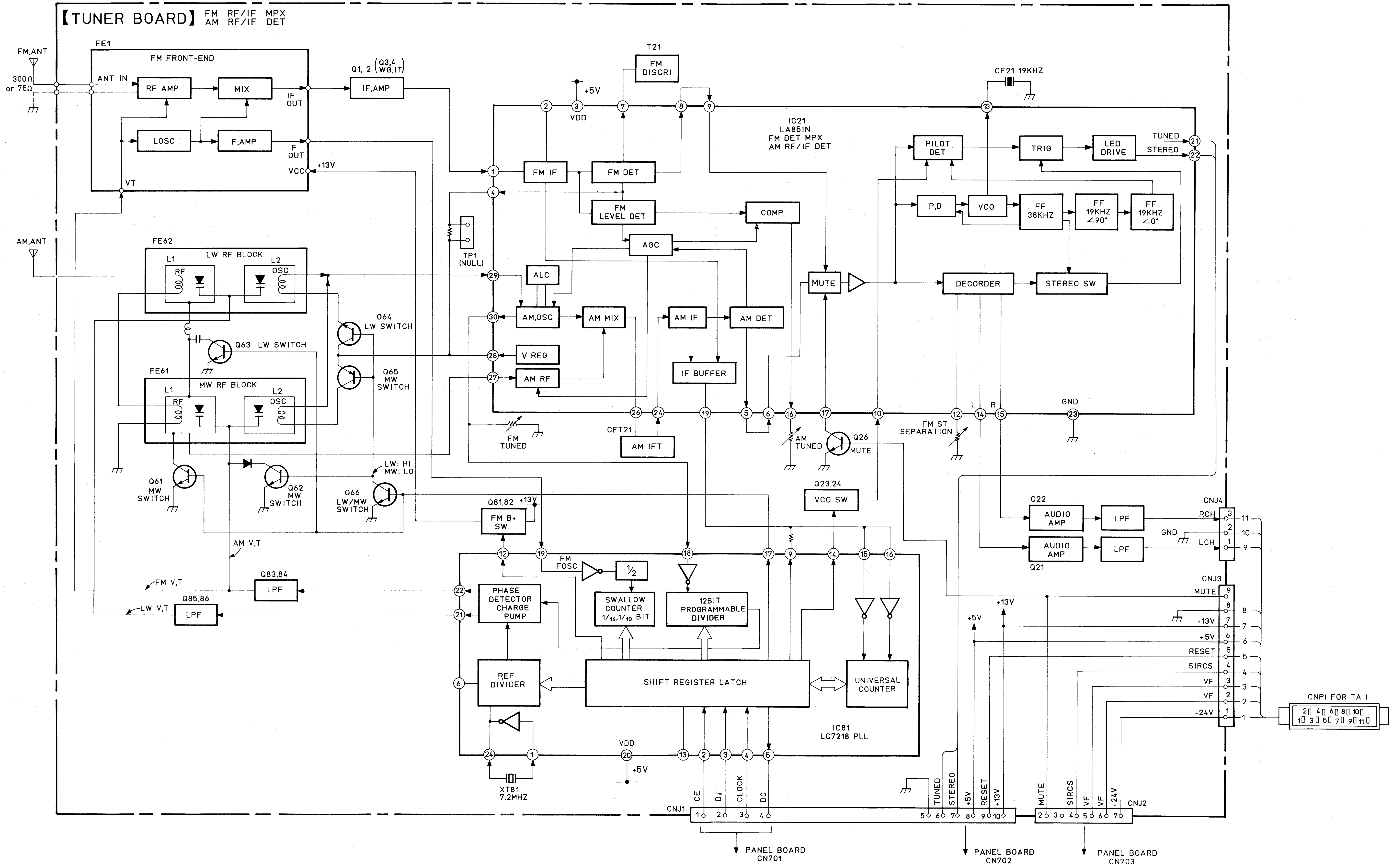
SECTION 3
DIAGRAMS

3-1. BLOCK DIAGRAM —PANEL BOARD—

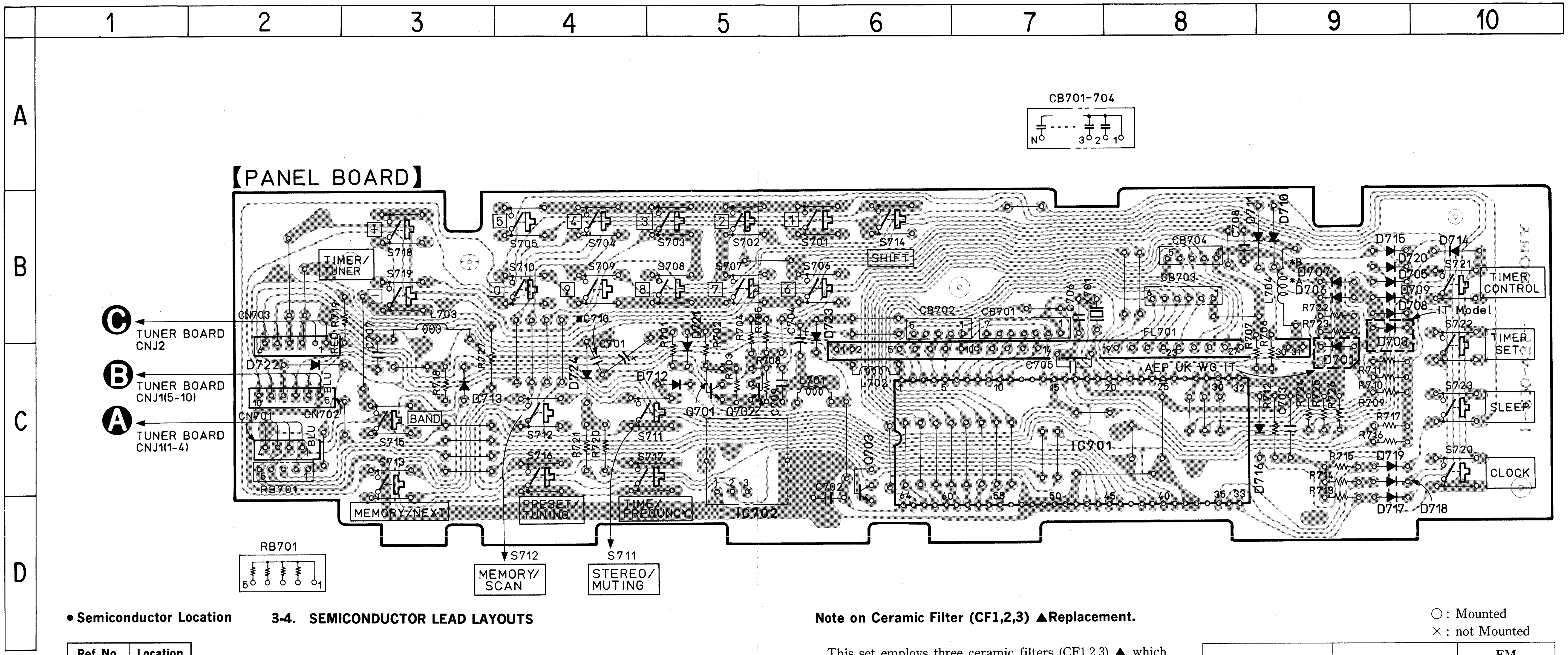


[PANEL BOARD] SYSTEM CONTROL TIMER CONTROL
FL701
INDICATOR TUBE
VF
VF
1G - 9G (GRID)
S0 - S9 (SEGMENT)
IC701 TMP47C670N
SYSTEM CONTROL
INDICATOR TUBE
I/O PORT
OUT PORT
NC
VKK
INDICATOR TUBE DRIVE
+5V
VDD
VSS
S701 - S727
KEY BOARD
SWITCH MATRIX
KO
4BIT
D/A CON-
VERTER
INPUT
FLAG
ALU
ACUMLATOR
H.V REGISTOR
RAM ADDRES BUFFER
RAM
PROGRAM COUNTER
ROM
Q701,Q702
HOLD
HOLD
RESET
HOLD CONTROL
SYSTEM CONTROL
SYSTEM CLOCK CONTROL
TIMING GENERATOR
CLOCK GENERATOR
INTERRUPT CONTROL
I/O PORT
INTERVAL TIMER
WATCH DOG TIMER
REMOCON
12BIT TIMER COUNTER
8BIT SIRIAL INTERFACE
INSTRUCTION RESISTOR/DECORDER
18BIT D/A CONVERTER PWM OUTPUT
X IN
X OUT
X701
4.19MHz
OUT PORT
OUT PORT
CN701
CE
DI
CLOCK
DO
TUNER BOARD
CNJ1
(1-4)
CN702
TUNED
STEREO
+5V
RESET
+13V
+5V
TUNER BOARD
CNJ1
(5-10)
CN703
MUTE
SIRCS OUT
VF
VF
VKK(-24V)
TUNER BOARD
CNJ2
I/O PORT
I/O PORT
I/O PORT
OUT PORT
TEST
STEREO IN
MUTE
SIRCS IN
SIRCS OUT
CE
DO
DI
CLOCK
RELAY OUT
POWER ON/OFF
TUNED
STEREO IN
MUTE
+5V
IC702 AIQ3020S
REMOTE SENSOR
SIRCS
Q703
SIRCS CONTROL
RESET
+13V

3-2. BLOCK DIAGRAM —TUNER BOARD—


【TUNER BOARD】 FM RF/IF MPX AM RF/IF DET
FM,ANT
300Ω or 75Ω
FE1
FM FRONT-END
ANT IN
RF AMP
MIX
IF OUT
LOSC
F,AMP
F OUT
VCC
+13V
VT
Q1, 2 (Q3,4 WG,IT)
IF,AMP
AM,ANT
FE62
LW RF BLOCK
L1
RF
L2
OSC
Q64 LW SWITCH
Q63 LW SWITCH
Q65 MW SWITCH
FE61
MW RF BLOCK
Q61 MW SWITCH
Q62 MW SWITCH
Q66 LW/MW SWITCH
LW: HI MW: LO
AM V,T
FM V,T
LW V,T
Q83,84
LPF
Q85,86
LPF
Q81,82 +13V
FM B+ SW
TP1 (NULL)
T21
FM DISCRI
+5V
VDD
IC21
LA851N
FM DET MPX
AM RF/IF DET
FM IF
FM DET
FM LEVEL DET
COMP
AGC
ALC
AM,OSC
AM MIX
AM IF
AM DET
V REG
AM RF
IF BUFFER
MUTE
CF21 19KHZ
PILOT DET
TRIG
LED DRIVE
TUNED
STEREO
P,D
VCO
FF 38KHZ
FF 19KHZ ∠90°
FF 19KHZ ∠0°
DECORDER
STEREO SW
L
R
GND
FM TUNED
CFT21
AM IFT
AM TUNED
Q26 MUTE
FM ST SEPARATION
Q23,24
VCO SW
Q22
AUDIO AMP
LPF
Q21
AUDIO AMP
LPF
CNJ4
RCH
GND
LCH
CNJ3
MUTE
+13V
+5V
RESET
SIRCS
VF
VF
-24V
CNP(FOR TA)
2 4 6 8 10
1 3 5 7 9 11
FM FOSC
½
SWALLOW COUNTER 1/16,1/10 BIT
12BIT PROGRAMMABLE DIVIDER
PHASE DETECTOR CHARGE PUMP
REF DIVIDER
SHIFT REGISTER LATCH
UNIVERSAL COUNTER
IC81
LC7218 PLL
VDD
+5V
XT81
7.2MHZ
CNJ1
CE
DI
CLOCK
DO
TUNED
STEREO
+5V
RESET
+13V
MUTE
SIRCS
VF
VF
-24V
CNJ2
PANEL BOARD CN701
PANEL BOARD CN702
PANEL BOARD CN703

3-3. PRINTED WIRING BOARD —PANEL BOARD—

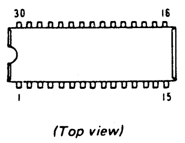

1
2
3
4
5
6
7
8
9
10
A
B
C
D
CB701-704
【PANEL BOARD】
TUNER BOARD CNJ2
TUNER BOARD CNJ1(5-10)
TUNER BOARD CNJ1(1-4)
CN703
CN701
CN702
RB701
TIMER/ TUNER
S718
S719
L703
C707
R719
D722
R718
R727
D713
BAND
S715
S713
MEMORY/NEXT
S705
S704
S703
S702
S701
S714
SHIFT
S710
S709
S708
S707
S706
C710
C701
D724
D712
R701
D721
R702
R703
R704
R705
R708
C704
D723
Q701
Q702
L701
C709
S712
S716
R721
R720
S711
S717
PRESET/ TUNING
TIME/ FREQUNCY
IC702
C702
Q703
L702
CB702
CB701
C706
X701
C705
CB704
CB703
FL701
C708
D711
D710
L704
D707
D706
R722
R723
R707
R706
D701
D703
AEP UK WG IT
IC701
R712
C703
R724
R725
R726
D716
R711
R710
R709
R717
R716
R715
R714
R713
D719
D717
D718
D715
D714
D720
D705
D709
D708
S721
S722
S723
S720
IT Model
TIMER CONTROL
TIMER SET
SLEEP
CLOCK
S712
MEMORY/ SCAN
S711
STEREO/ MUTING

- **Semiconductor Location**

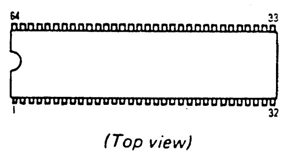
Ref. No.	Location
D701	C-8
D703	B-9
D705	B-9
D707	B-9
D708	B-9
D709	B-9
D710	B-9
D711	B-8
D712	C-5
D713	C-3
D714	B-10
D715	B-9
D716	C-8
D717	D-9
D718	C-8
D719	C-8
D720	B-9
D721	C-5
D722	C-2
D723	B-6
D724	C-4
IC701	C-7
Q701	C-5
Q702	C-5

3-4. SEMICONDUCTOR LEAD LAYOUTS

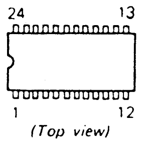
LA1851N


30
16
1
15
(Top view)

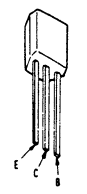
TMP47C670N


64
33
1
32
(Top view)

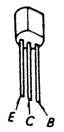
LC7218


24
13
1
12
(Top view)

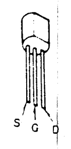
DTA114ES
DTC114ES
DTC144ES
2SA1317
2SC2669
2SC3330S



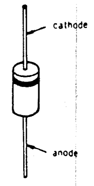
2SC3112B



2SK246-GR3



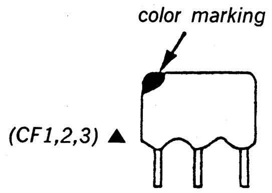
US1060M


cathode
anode

- ○—— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.

Note on Ceramic Filter (CF1,2,3) ▲Replacement.

This set employs three ceramic filters (CF1,2,3) ▲ which should have the same color marking to identify their center frequency. Therefore FM IF offset adjustment by D706 ,D707 mounted is necessary to match the center frequency of the ceramic filters used with FM intermediate frequency.


color marking
(CF1,2,3) ▲

○ : Mounted
× : not Mounted

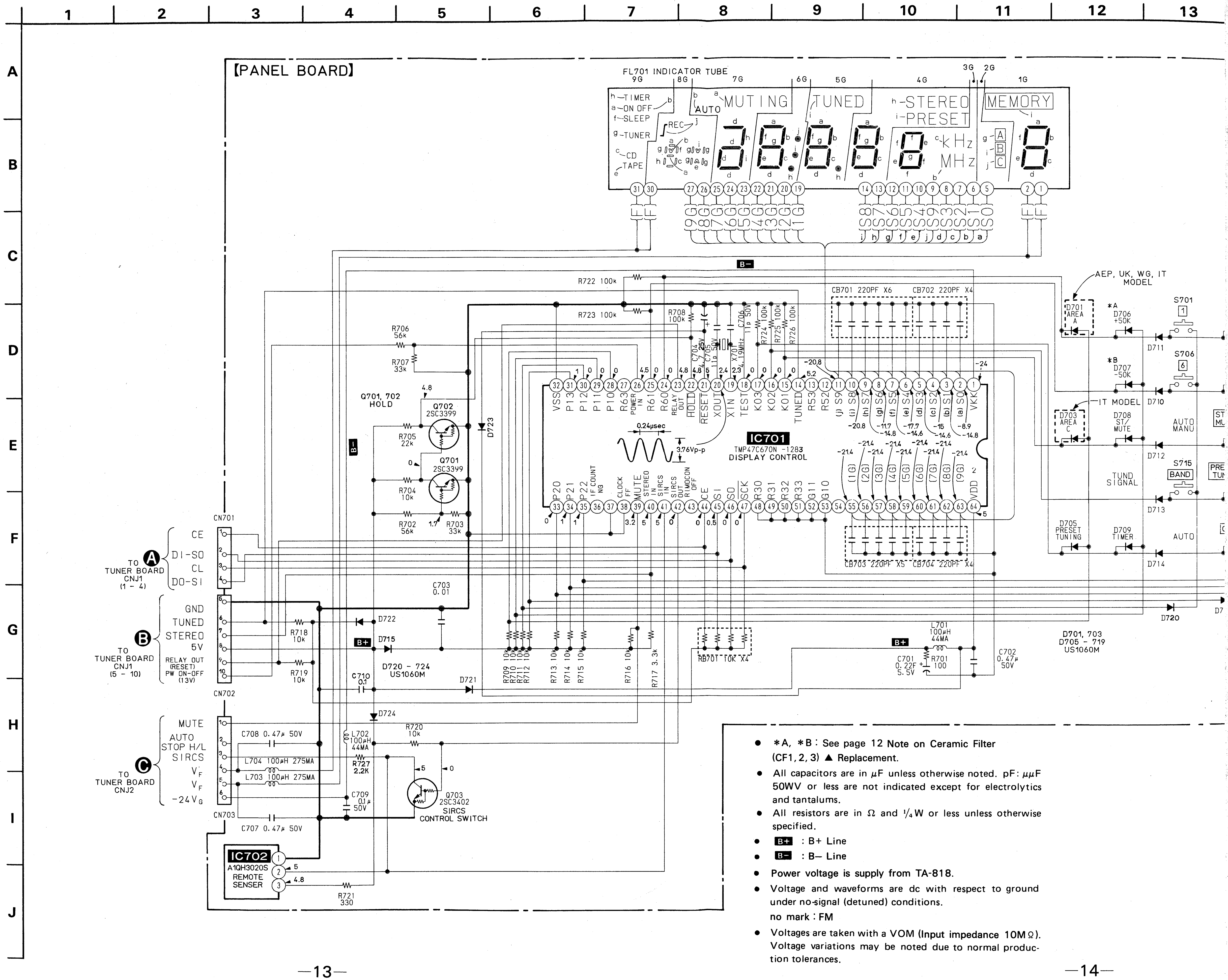
Ceramic filter		Mount		FM intermediate fequency (MHz)
Color mark	Center fre-quency (MHz)	*A D706	*B D707	
White	10.750	×	○	10.750
Red	10.700	×	×	10.700
Black	10.650	○	×	10.650

FM intermediate frequency is determined by the three types as shown above. Ceramic filters of same center frequency,i.e., of same color coding should be used for CF 1, CF2, and CF3.

When replacing the ceramic filters, perform the FM Discriminator Adjustment.

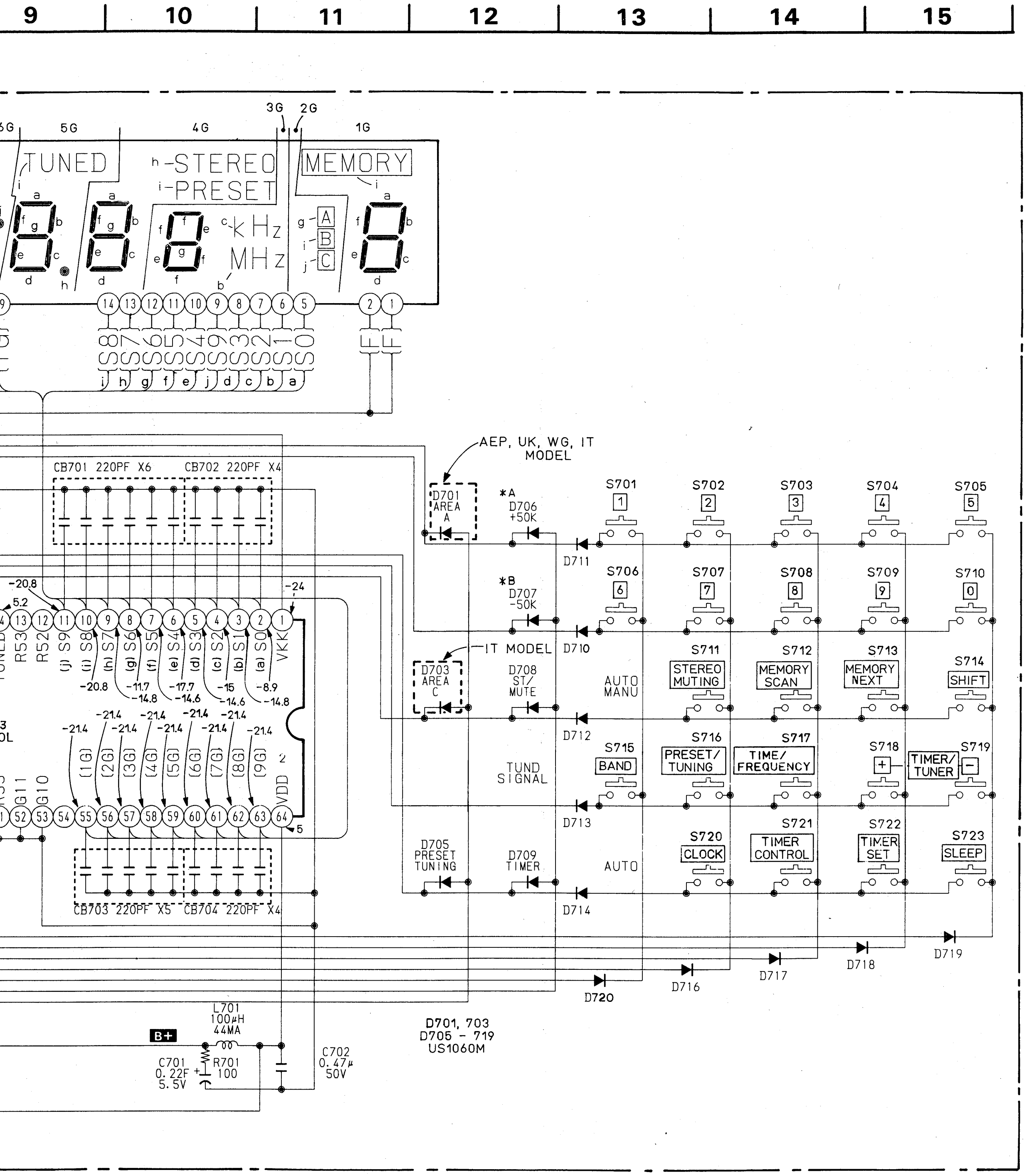
▲: US, Canadian, AEP, UK
WG, IT Model

3-5. SCHEMATIC DIAGRAM —PANEL BOARD—



1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H I J
【PANEL BOARD】
FL701 INDICATOR TUBE
TIMER
ON OFF
SLEEP
TUNER
CD
TAPE
AUTO
REC
MUTING
TUNED
STEREO
PRESET
MEMORY
kHz
MHz
A
B
C
9G 8G 7G 6G 5G 4G 3G 2G 1G
IC701
TMP47C670N -1283
DISPLAY CONTROL
IC702
A1QH3020S
REMOTE SENSER
Q701, 702 HOLD
Q702 2SC3399
Q701 2SC3399
Q703 2SC3402
SIRCS CONTROL SWITCH
X701 4.19MHz
CB701 220PF X6
CB702 220PF X4
CB703 220PF X5
CB704 220PF X4
RB701 10K X4
R722 100k
R723 100k
R708 100k
R706 56k
R707 33k
R705 22k
R704 10k
R702 56k
R703 33k
R718 10k
R719 10k
R720 10k
R727 2.2K
R721 330
R701 100
R709 10k R710 10k R711 10k R712 10k
R713 10k R714 10k R715 10k R716 10k R717 3.3k
C703 0.01
C701 0.22F 5.5V
C702 0.47μ 50V
C708 0.47μ 50V
C707 0.47μ 50V
C709 0.1μ 50V
C710 0.1
L701 100μH 44MA
L702 100μH 44MA
L704 100μH 275MA
L703 100μH 275MA
D720 - 724 US1060M
D722 D715 D721 D723 D724
0.24μsec
3.76Vp-p
CN701 CN702 CN703
TO TUNER BOARD CNJ1 (1 - 4)
CE
DI-SO
CL
DO-SI
TO TUNER BOARD CNJ1 (5 - 10)
GND
TUNED
STEREO
5V
RELAY OUT (RESET)
PW ON-OFF (13V)
TO TUNER BOARD CNJ2
MUTE
AUTO STOP H/L
SIRCS
V_F
V_F
$-24V_G$
AEP, UK, WG, IT MODEL
D701 AREA A
D703 AREA C
IT MODEL
D706 +50K
D707 -50K
D708 ST/MUTE
TUND SIGNAL
D705 PRESET TUNING
D709 TIMER
S701
S706
S715 BAND
AUTO MANU
AUTO
D710 D711 D712 D713 D714 D720
D701, 703 D705 - 719 US1060M
B+
B−

- ∗A, ∗B : See page 12 Note on Ceramic Filter (CF1, 2, 3) ▲ Replacement.
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- B+ : B+ Line
- B− : B− Line
- Power voltage is supply from TA-818.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.


9
10
11
12
13
14
15
5G
4G
3G
2G
1G
TUNED
STEREO
PRESET
MEMORY
kHz
MHz
A
B
C
CB701 220PF X6
CB702 220PF X4
CB703 220PF X5
CB704 220PF X4
AEP, UK, WG, IT MODEL
D701 AREA A
*A D706 +50K
*B D707 -50K
IT MODEL
D703 AREA C
D708 ST/MUTE
D705 PRESET TUNING
D709 TIMER
D710
D711
D712
D713
D714
D716
D717
D718
D719
D720
S701 1
S702 2
S703 3
S704 4
S705 5
S706 6
S707 7
S708 8
S709 9
S710 0
AUTO MANU
S711 STEREO MUTING
S712 MEMORY SCAN
S713 MEMORY NEXT
S714 SHIFT
TUND SIGNAL
S715 BAND
S716 PRESET/TUNING
S717 TIME/FREQUENCY
S718 +
S719 TIMER/TUNER −
AUTO
S720 CLOCK
S721 TIMER CONTROL
S722 TIMER SET
S723 SLEEP
-20.8
-24
5.2
-11.7
-14.8
-17.7
-14.6
-15
-8.9
-21.4
VKK
VDD
L701 100μH 44MA
B+
C701 0.22F 5.5V
R701 100
C702 0.47μ 50V
D701, 703
D705 - 719
US1060M

*B : See page 12 Note on Ceramic Filter

2, 3) ▲ Replacement.

pacitors are in μF unless otherwise noted. pF: μμF

or less are not indicated except for electrolytics

ntalums.

esistors are in Ω and ¼W or less unless otherwise

ied.

: B+ Line

: B– Line

voltage is supply from TA-818.

e and waveforms are dc with respect to ground

no-signal (detuned) conditions.

rk : FM

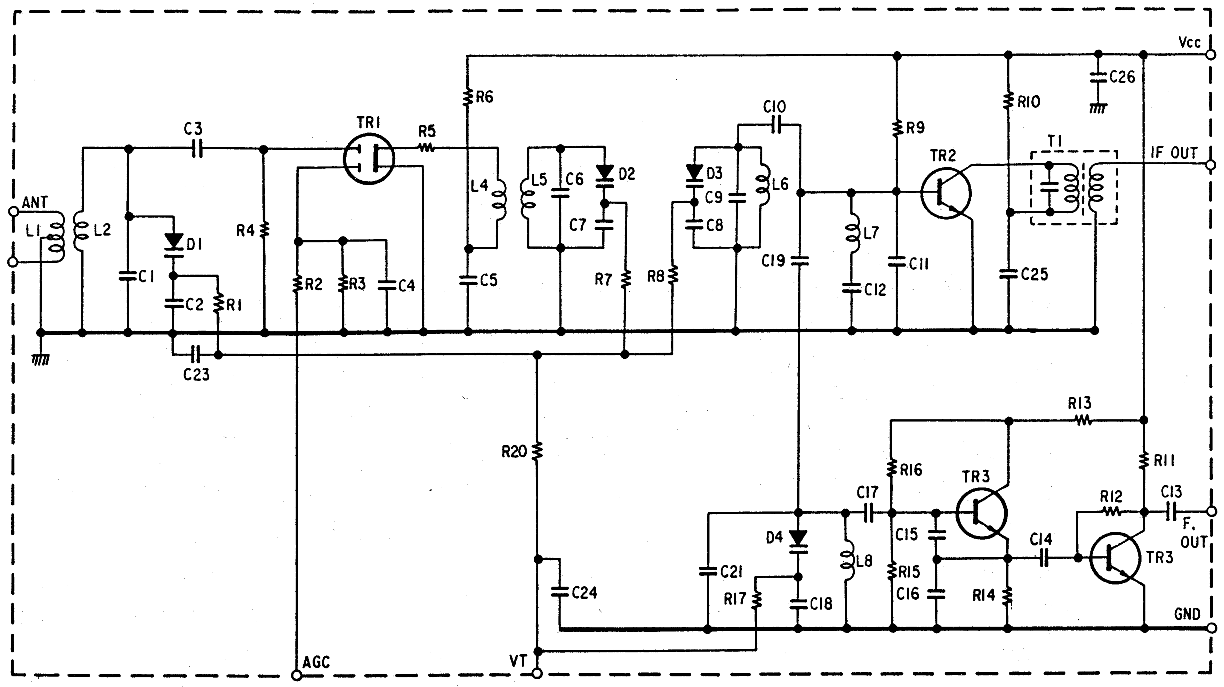
es are taken with a VOM (Input impedance 10MΩ).

e variations may be noted due to normal produc-

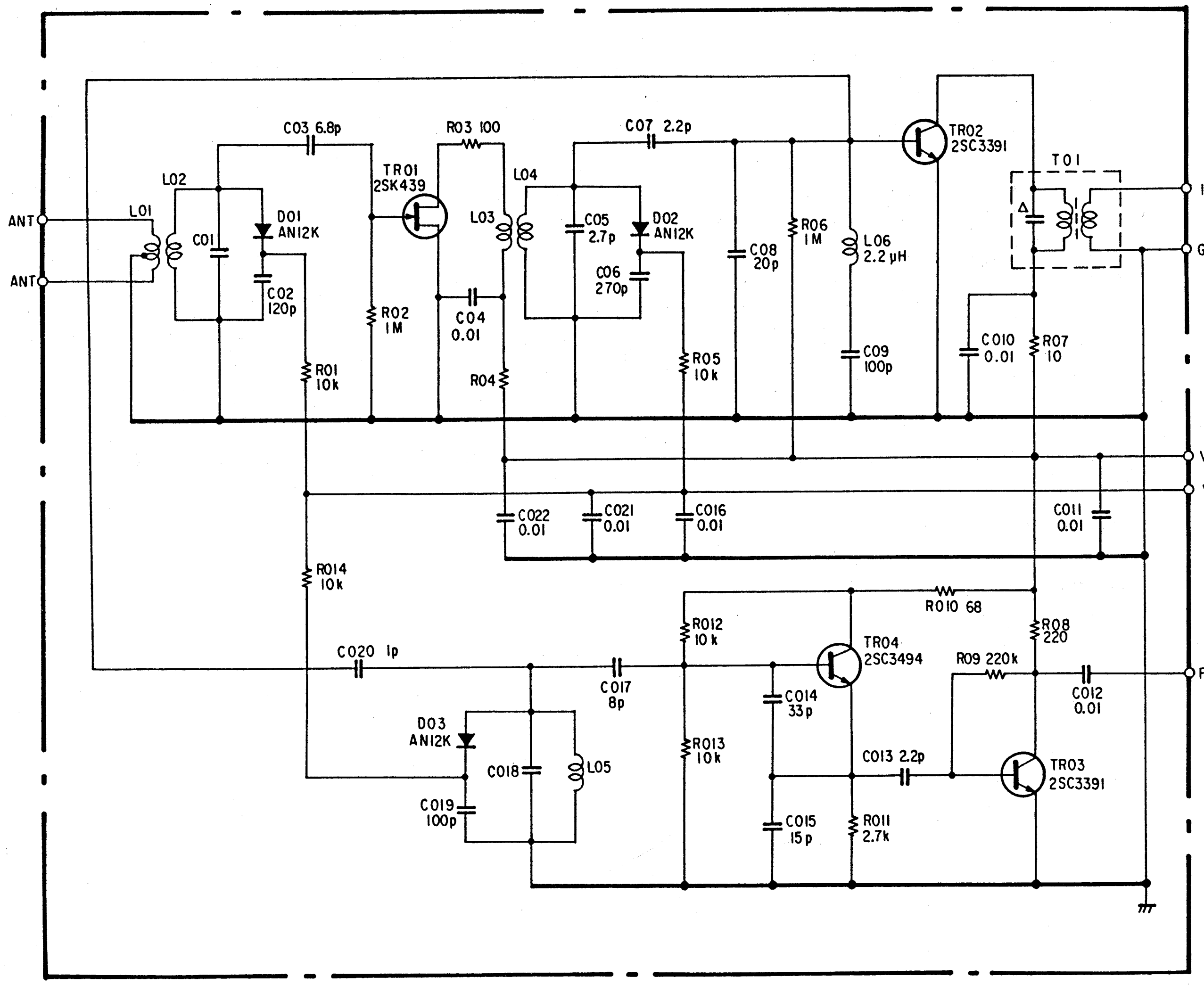
lerances.

3-6. FM FRONT-END SCHEMATIC DIAGRAMS

FE1 (WG, IT Model)

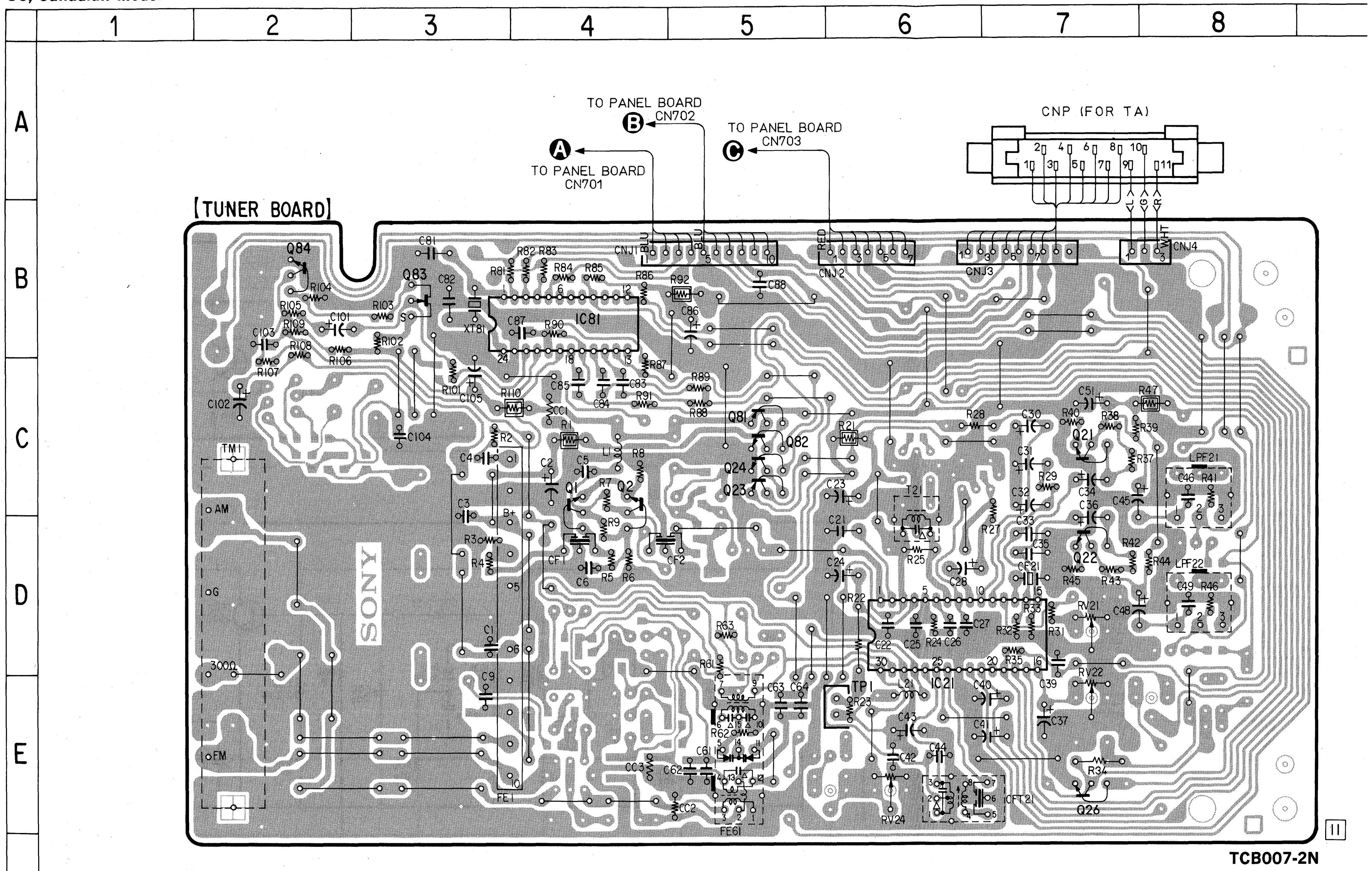

Vcc
ANT
L1
L2
C1
C2
C3
D1
R1
R2
R3
R4
C4
TR1
R5
R6
L4
C5
L5
C6
C7
D2
R7
R8
D3
C9
C8
C10
L6
C19
L7
C12
R9
C11
TR2
R10
C26
T1
C25
IF OUT
C23
AGC
R13
R20
R16
TR3
R11
C17
R12
C13
F. OUT
D4
C15
C14
L8
C21
R15
C16
R14
TR3
C24
R17
C18
GND
VT

FE1 (US, Canadian, AEP, UK Model)


ANT
ANT
L01
L02
C01
D01 AN12K
C02 120p
C03 6.8p
R01 10k
TR01 2SK439
R02 1M
C04 0.01
R03 100
L03
L04
C05 2.7p
D02 AN12K
C06 270p
R04
C07 2.2p
R05 10k
C08 20p
R06 1M
L06 2.2μH
C09 100p
TR02 2SC3391
T01
IF OU
GND
C010 0.01
R07 10
VCC
VT
C022 0.01
C021 0.01
C016 0.01
C011 0.01
R014 10k
R012 10k
R010 68
R08 220
C020 1p
C017 8p
TR04 2SC3494
R09 220k
F OUT
C012 0.01
D03 AN12K
C018
L05
C019 100p
R013 10k
C014 33p
C013 2.2p
TR03 2SC3391
C015 15p
R011 2.7k

3-7. PRINTED WIRING BOARDS —TUNER BOARD—

US, Canadian Model

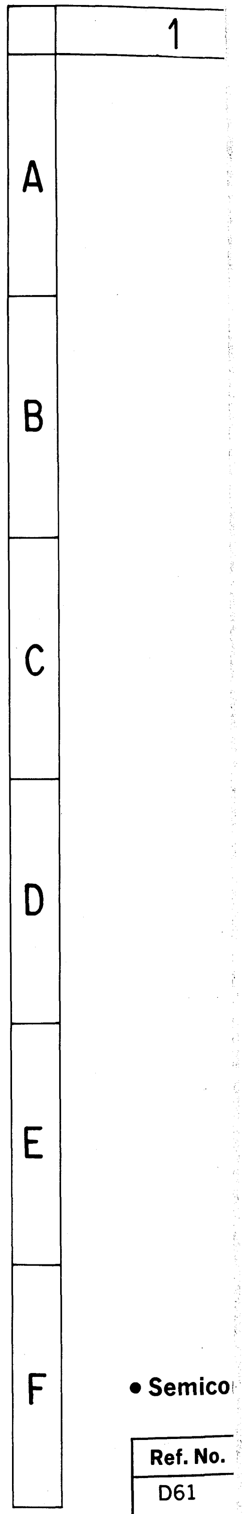

1
2
3
4
5
6
7
8
A
B
C
D
E
F
TO PANEL BOARD
Ⓑ CN702
Ⓐ
TO PANEL BOARD
CN701
TO PANEL BOARD
Ⓒ CN703
CNP (FOR TA)
L
G
R
WHT
BLU
RED
[TUNER BOARD]
CNJ1
CNJ2
CNJ3
CNJ4
IC81
IC21
Q84
Q83
Q81
Q82
Q24
Q23
Q1
Q2
Q21
Q22
Q26
XT81
T21
TP1
L21
LPF21
LPF22
CF1
CF2
CF21
CFT21
FE1
FE61
RV21
RV22
RV24
TM1
AM
G
300Ω
FM
B+
SONY
TCB007-2N

• Semiconductor Location

Ref. No.	Location
IC21	D-6
IC81	B-4
Q1	C-4
Q2	C-4
Q21	C-7
Q22	D-7
Q23	C-5
Q24	C-5
Q26	E-7
Q81	C-5
Q82	C-5
Q83	B-3
Q84	B-2

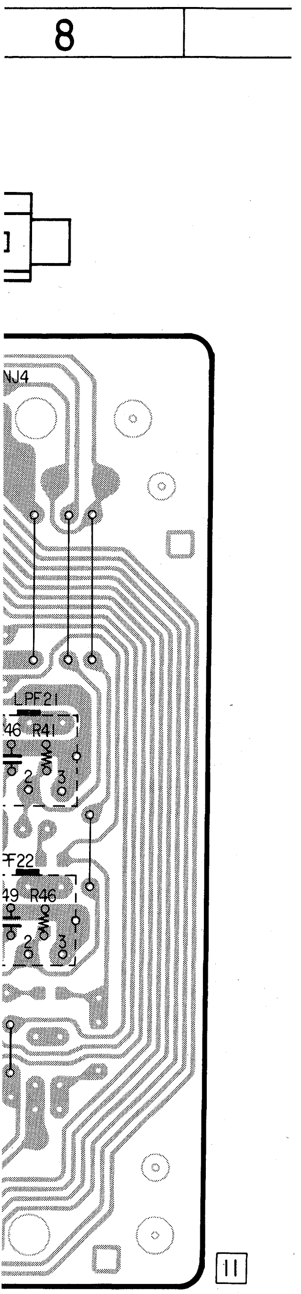
- ○—— : parts extracted from the component side.
- [┆]- indicates side identified with part number.

AEP, UK, WG, IT M



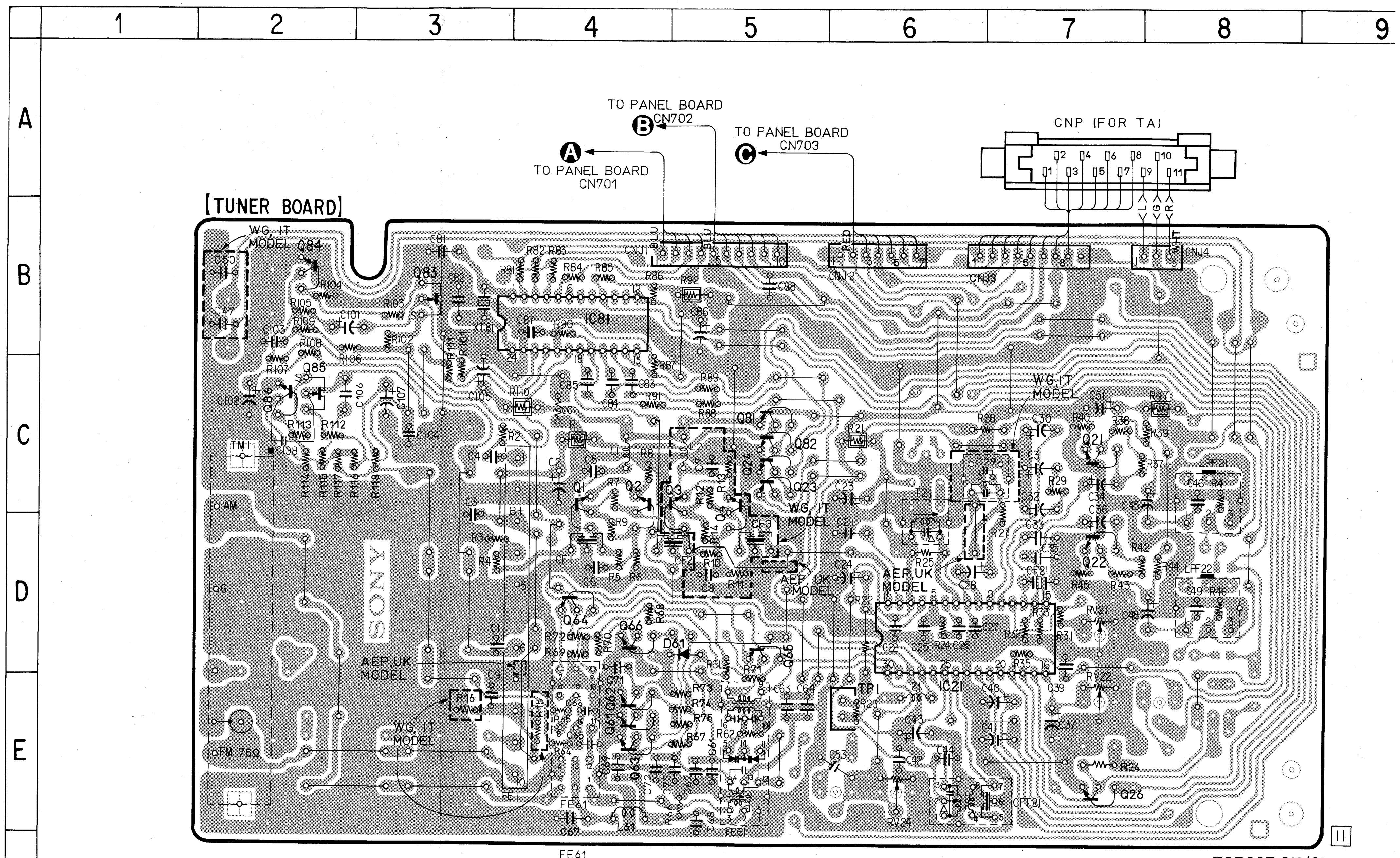
• Semico

Ref. No.
D61
IC21
IC81
Q1
Q2
Q3
Q4
Q21
Q22
Q23
Q24

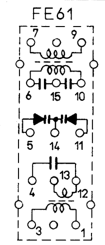

8
CNJ4
LPF21
LPF22

TCB007-2N

AEP, UK, WG, IT Model


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
[TUNER BOARD]
TO PANEL BOARD CN701
TO PANEL BOARD CN702
TO PANEL BOARD CN703
CNP (FOR TA)
WG, IT MODEL
AEP, UK MODEL
CNJ1
CNJ2
CNJ3
CNJ4
BLU
RED
WHT
IC81
IC21
Q1
Q2
Q3
Q4
Q21
Q22
Q23
Q24
Q26
Q61
Q62
Q63
Q64
Q65
Q66
Q81
Q82
Q83
Q84
Q85
Q86
D61
XT81
TM1
AM
G
FM 75Ω
FE61
L61
LPF21
LPF22
CF1
CF2
CF3
CFT21
T21
RV21
RV22
RV24
TP1
SONY

TCB007-3H/3I

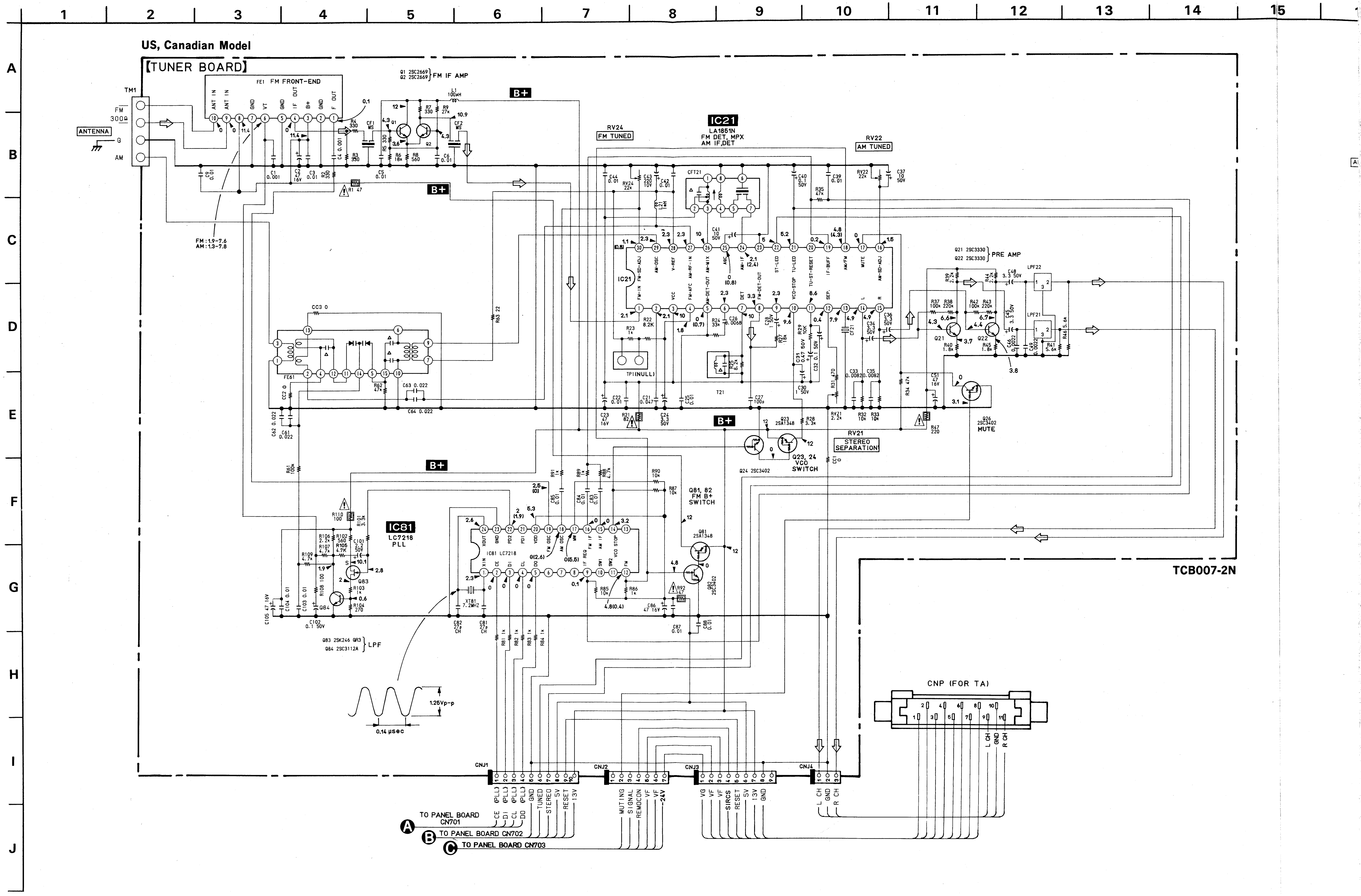


• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D61	D-5	Q26	E-7
		Q61	E-4
IC21	D-6	Q62	E-4
IC81	B-4	Q63	E-4
		Q64	D-4
Q1	C-4	Q65	D-5
Q2	C-4	Q81	C-5
Q3	C-4	Q82	C-5
Q4	C-5	Q83	B-3
Q21	C-7	Q84	B-2
Q22	D-7	Q85	C-2
Q23	C-5	Q86	C-2
Q24	C-5		

- ○—— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- [⁝]← indicates side identified with part number.
- WG: West Germany model
- IT : Italian model

3-8. SCHEMATIC DIAGRAMS —TUNER BOARD—


1
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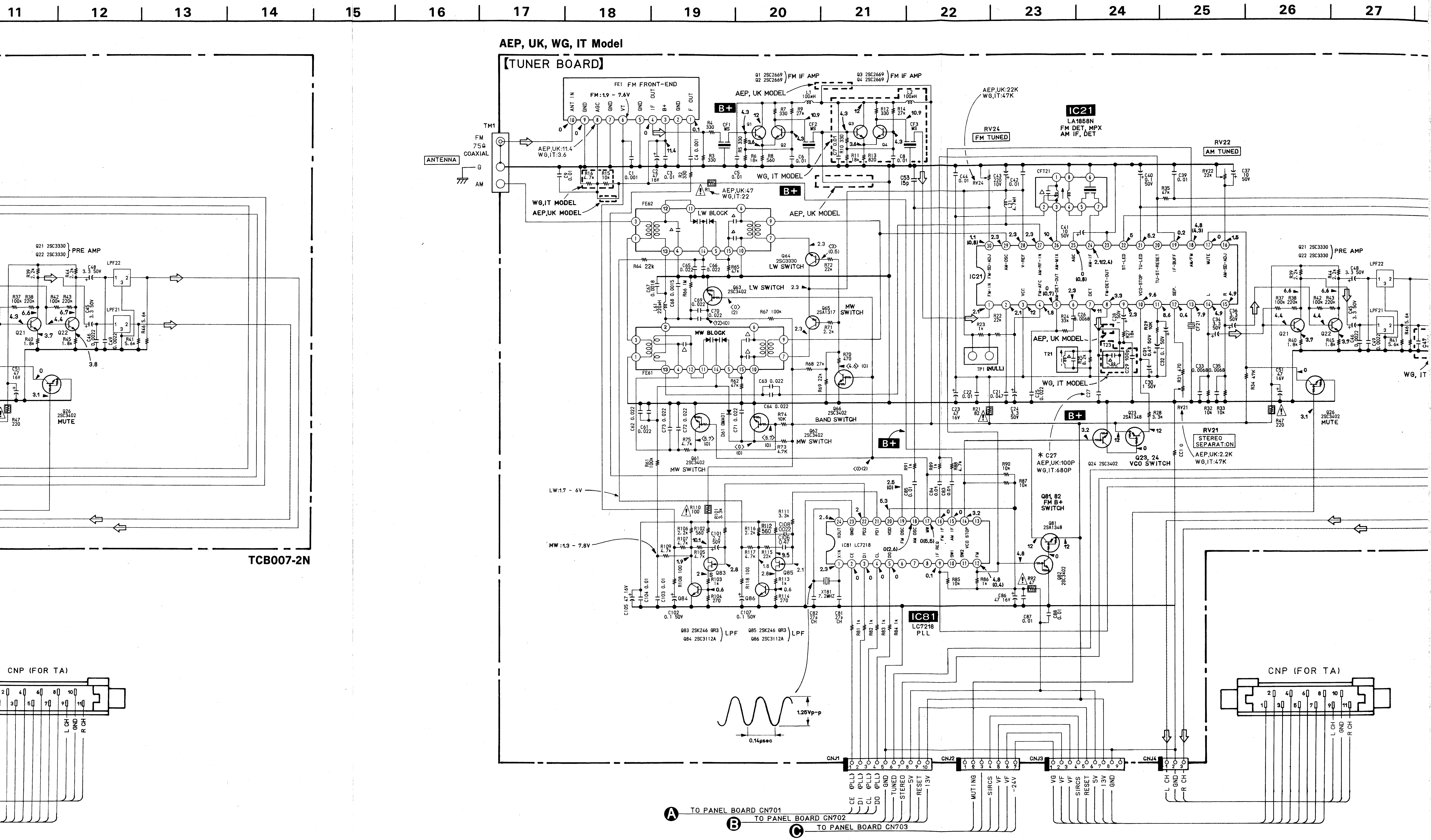
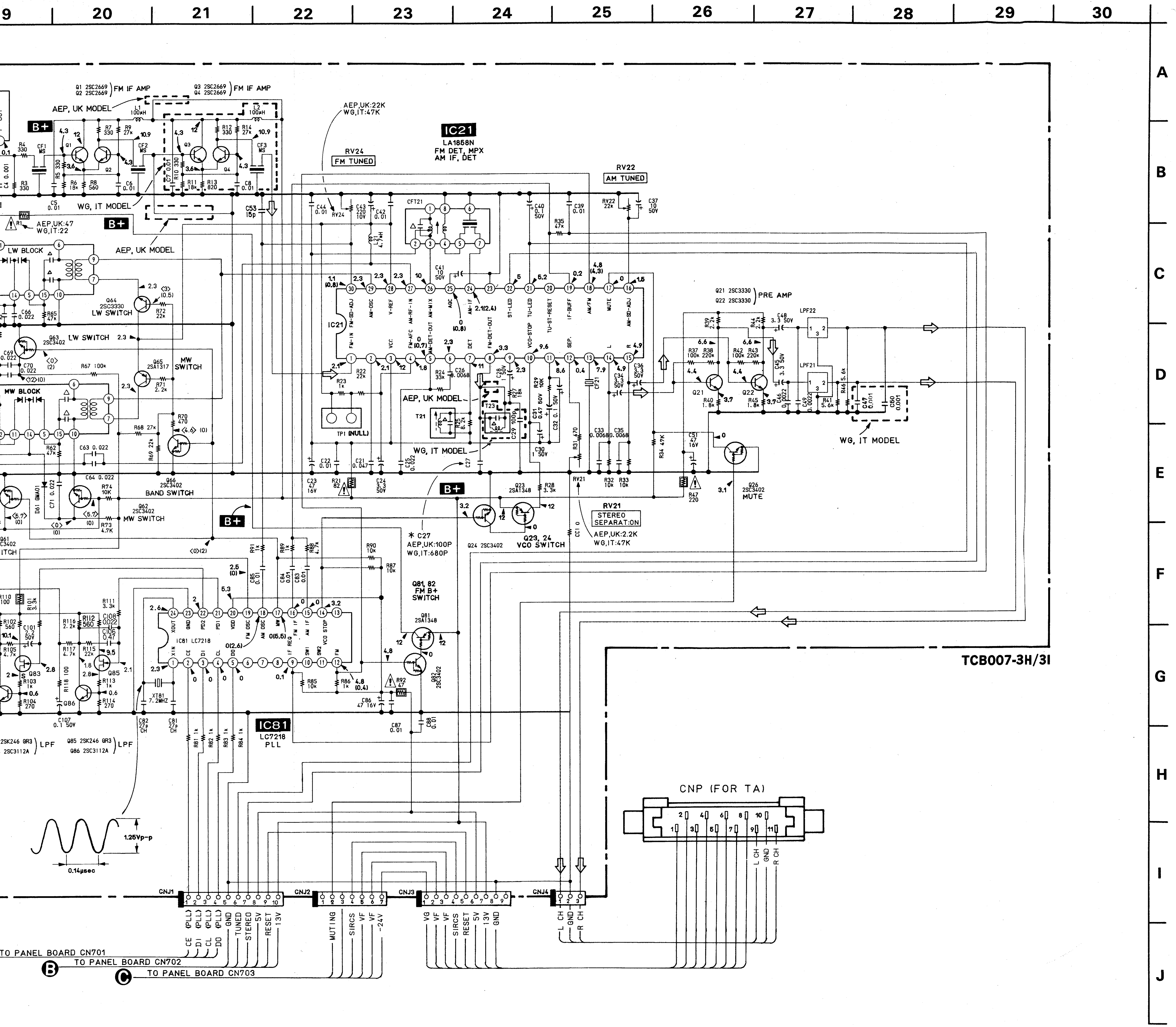
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
US, Canadian Model
[TUNER BOARD]
TM1
FM 300Ω
ANTENNA
G
AM
FE1 FM FRONT-END
ANT IN
GND
VT
IF OUT
B+
F OUT
Q1 2SC2669
Q2 2SC2669
FM IF AMP
L1 100μH
CF1 MS
CF2 MS
B+
FM : 1.9-7.6
AM : 1.3-7.8
RV24
FM TUNED
IC21
LA1851N
FM DET, MPX
AM IF,DET
RV22
AM TUNED
CFT21
FM-IN
AM-OSC
V-REF
AM-RF-IN
AM-MIX
ABC
AM-IF
ST-LED
TU-LED
TU-ST-RESET
IF-BUFF
AM/FM
MUTE
AM-SD-ADJ
FM-SD-ADJ
VCC
FM-AFC
AM-DET-OUT
FM-DET-OUT
DET
VCO-STOP
SEP.
L
R
TP1(NULL)
T21
Q21 2SC3330
Q22 2SC3330
PRE AMP
LPF22
LPF21
Q26 2SC3402
MUTE
Q23 2SA1348
Q24 2SC3402
Q23, 24
VCO
SWITCH
RV21
STEREO
SEPARATION
FE61
CC3 0
C63 0.022
C64 0.022
C62 0.022
C61 0.022
R61 100k
R63 22
IC81
LC7218
PLL
IC81 LC7218
XOUT
XIN
CE
DI
CL
DO
PD2
PD1
VDD
FM OSC
AM OSC
IF REQ
SW1
SW2
FM IF
AM IF
VCO STOP
FM
XT81 7.2MHZ
Q83
Q84
Q83 2SK246 GR3
Q84 2SC3112A
LPF
Q81, 82
FM B+
SWITCH
Q81 2SA1348
Q82 2SC3402
1.25Vp-p
0.14 μsec
TCB007-2N
CNP (FOR TA)
L CH
GND
R CH
CNJ1
CNJ2
CNJ3
CNJ4
CE (PLL)
DI (PLL)
CL (PLL)
DO (PLL)
GND
TUNED
STEREO
5V
RESET
13V
MUTING
SIGNAL
REMOCON
5V
VF
-24V
VG
VF
VF
SIRCS
RESET
5V
13V
GND
L CH
GND
R CH
A TO PANEL BOARD CN701
B TO PANEL BOARD CN702
C TO PANEL BOARD CN703

AEP, UK, WG, IT Model


11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
【TUNER BOARD】
FE1 FM FRONT-END
FM:1.9 - 7.6V
ANT IN
GND
AGC
VT
IF OUT
B+
F OUT
Q1 2SC2669
Q2 2SC2669
FM IF AMP
Q3 2SC2669
Q4 2SC2669
FM IF AMP
AEP, UK MODEL
B+
WG, IT MODEL
TM1
FM 75Ω COAXIAL
ANTENNA
G
AM
AEP,UK:11.4
WG,IT:3.6
WG,IT MODEL
AEP,UK MODEL
AEP,UK:47
WG,IT:22
FE62
LW BLOCK
Q64 2SC3330 LW SWITCH
Q63 2SC3402
LW SWITCH
Q65 2SA1317
MW SWITCH
MW BLOCK
FE61
Q66 2SC3402 BAND SWITCH
Q62 2SC3402 MW SWITCH
Q61 2SC3402 MW SWITCH
LW:1.7 - 6V
MW:1.3 - 7.8V
Q83 2SK246 GR3
Q84 2SC3112A
LPF
Q85 2SK246 GR3
Q86 2SC3112A
LPF
IC81 LC7218
IC81 LC7218 PLL
XT81 7.2MHz
1.26Vp-p
0.14μsec
AEP,UK:22K
WG,IT:47K
RV24 FM TUNED
IC21 LA1858N FM DET, MPX AM IF, DET
RV22 AM TUNED
CFT21
TP1 (NULL)
T21
T23
AEP, UK MODEL
WG, IT MODEL
Q23 2SA1348
Q24 2SC3402
Q23, 24 VCO SWITCH
RV21 STEREO SEPARAT:ON
AEP,UK:2.2K
WG,IT:47K
* C27
AEP,UK:100P
WG,IT:680P
Q81, 82 FM B+ SWITCH
Q81 2SA1348
Q82 2SC3402
Q21 2SC3330
Q22 2SC3330
PRE AMP
LPF22
LPF21
Q26 2SC3402 MUTE
CNP (FOR TA)
L CH
GND
R CH
TCB007-2N
CNJ1
CE (PLL)
DI (PLL)
CL (PLL)
DO (PLL)
GND
TUNED
STEREO
5V
RESET
13V
CNJ2
MUTING
SIRCS
VF
VF
-24V
CNJ3
VG
VF
VF
SIRCS
RESET
5V
13V
GND
CNJ4
L CH
GND
R CH
Ⓐ TO PANEL BOARD CN701
Ⓑ TO PANEL BOARD CN702
Ⓒ TO PANEL BOARD CN703
WG, IT


IC21
LA1858N
FM DET, MPX
AM IF, DET
IC81
LC7218
PLL
RV24 FM TUNED
RV22 AM TUNED
RV21 STEREO SEPARAT:ON
AEP,UK:22K
WG,IT:47K
AEP,UK:2.2K
WG,IT:47K
Q1 2SC2669
Q2 2SC2669 FM IF AMP
Q3 2SC2669
Q4 2SC2669 FM IF AMP
AEP, UK MODEL
WG, IT MODEL
LW BLOCK
MW BLOCK
Q64 2SC3330 LW SWITCH
Q63 2SC3402 LW SWITCH
Q65 2SA1317 MW SWITCH
Q66 2SC3402 BAND SWITCH
Q62 2SC3402 MW SWITCH
Q21 2SC3330
Q22 2SC3330 PRE AMP
Q26 2SC3402 MUTE
Q23, 24 VCO SWITCH
Q23 2SA1348
Q24 2SC3402
Q81, 82 FM B+ SWITCH
Q81 2SA1348
Q82 2SC3402
Q83 2SK246 GR3
Q84 2SC3112A LPF
Q85 2SK246 GR3
Q86 2SC3112A LPF
* C27
AEP,UK:100P
WG,IT:680P
TP1 (NULL)
T21
T23
CFT21
LPF21
LPF22
XT81 7.2MHZ
1.26Vp-p
0.14μsec
TCB007-3H/3I
CNP (FOR TA)
L CH
GND
R CH
CNJ1
CNJ2
CNJ3
CNJ4
CE (PLL)
DI (PLL)
CL (PLL)
DO (PLL)
GND
TUNED
STEREO
5V
RESET
13V
MUTING
SIRCS
VF
VF
-24V
VG
VF
VF
SIRCS
RESET
5V
13V
GND
TO PANEL BOARD CN701
Ⓑ TO PANEL BOARD CN702
Ⓒ TO PANEL BOARD CN703
B+
9
20
21
22
23
24
25
26
27
28
29
30
A
B
C
D
E
F
G
H
I
J

- ✱A, ✱B : See page 12 Note on Ceramic Filter (CF1, 2, 3) ▲ Replacement.
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $^1/_4$W or less unless otherwise specified.
- △ : internal component.
- ▭ : nonflammable resistor.
- **B+** : B+ Line
- ▭ : adjustment for repair.
- Power voltage is supply from TA-818.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.

  no mark : FM
  (   ) : AM
  〈   〉 : LW
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.

  ⇨ : FM
- WG: West Germany model
- IT : Italian model

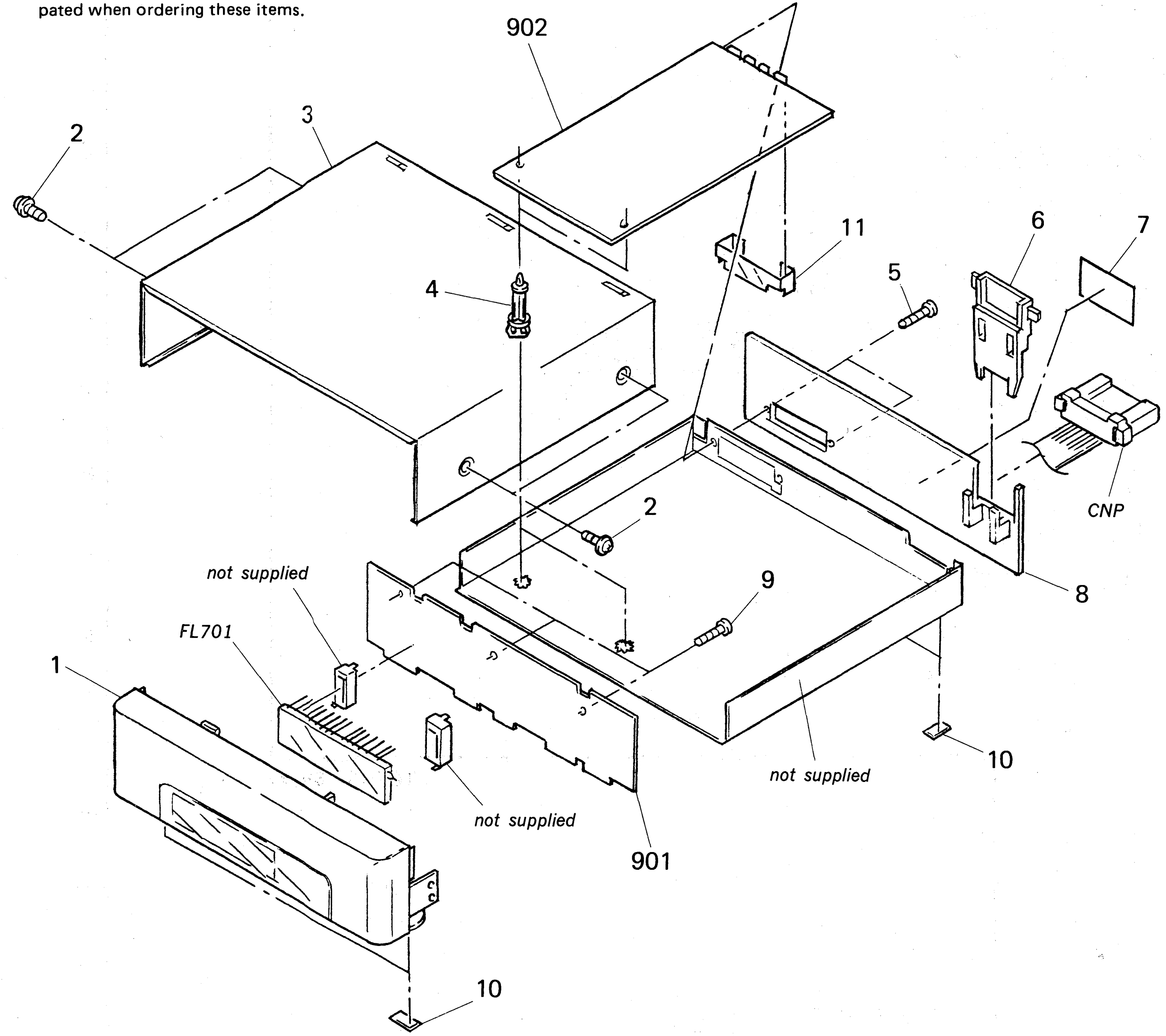
Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 4
EXPLODED VIEW

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts' Color

- ●WG: West Germany model
- ●IT : Italian model



No.	Part No.	Description	Remarks
1	X-4930-307-1	PANEL ASSY, FRONT	
2	3-704-366-01	SCREW (CASE) (M3X8)	
3	4-930-347-21	CASE	
4	*4-914-008-01	HOLDER, PCB	
5	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
6	4-930-344-01	HOLDER (CONNECTION CORD)	
7	*4-930-313-01	(AEP,UK)........LABEL, MODEL NUMBER (AE)	
	*4-930-314-01	(WG)............LABEL, MODEL NUMBER (AE4)	
	*4-930-315-01	(IT)............LABEL, MODEL NUMBER (IT)	
	*4-930-316-01	(US,Canadian)...LABEL, MODEL NUMBER (U/C)	
8	4-930-346-01	PANEL (ST), BACK	
9	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S	
10	4-930-336-01	FOOT (FELT)	
11	*4-924-988-11	PLATE (ST), GROUND	

No.	Part No.	Description	Remarks
901	*A-4333-327-A	(US,Canadian)...MOUNTED PCB, PANEL	
	*A-4333-328-A	(IT)............MOUNTED PCB, PANEL	
	*A-4333-329-A	(AEP,UK,WG).....MOUNTED PCB, PANEL	
902	*A-4303-186-A	(US, Canadian)...MOUNTED PCB, TUNER	
	*A-4303-187-A	(AEP,UK).........MOUNTED PCB, TUNER	
	*A-4303-188-A	(WG, IT).........MOUNTED PCB, TUNER	
CNP	1-574-636-11	CORD (WITH CONNECTOR)	
FL701	1-519-517-11	INDICATOR TUBE, FLUORESCENT	

SE
ELECTRIC

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPAC
MF

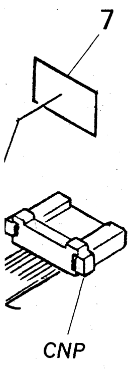
RESIS
- All
- F: r

COILS
- MM

SEMIC
In e
UA.
UPC
- ●WG:
- ●IT :

Ref.No.	Part No.	Description
901	*A-4333-327-A	(US,Canadian)...MOUNTED PCB, PANEL
	*A-4333-328-A	(IT)............MOUNTED PCB, PANEL
	*A-4333-329-A	(AEP,UK,WG).....MOUNTED PCB, PANEL
902	*A-4303-186-A	(US, Canadian)...MOUNTED PCB, TUNER
	*A-4303-187-A	(AEP,UK).........MOUNTED PCB, TUNER
	*A-4303-188-A	(WG, IT).........MOUNTED PCB, TUNER
C1	1-162-294-31	CERAMIC CHIP 0.001MF 20% 25V
C2	1-124-477-11	CAP, ELECT 47MF 20% 16V
C3	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C4	1-162-294-31	CERAMIC CHIP 0.001MF 20% 25V
C5	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C6	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C7	1-163-059-00	(WG,IT)...CERAMIC MELF 0.01MF 20% 16V
C8	1-163-059-00	(WG,IT)...CERAMIC MELF 0.01MF 20% 16V
C9	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C21	1-101-006-00	CAP, CERAMIC 0.047MF F 20% 50V
C22	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C23	1-124-477-11	CAP, ELECT 47MF 20% 16V
C24	1-123-382-00	CAP, ELECT 3.3MF 20% 50V
C25	1-163-063-00	CERAMIC MELF 0.022MF 25V
C26	1-162-527-11	CERAMIC CHIP 0.0068MF 20% 12V
C27	1-162-516-11	(US,Canadian,AEP,UK) ...CERAMIC CHIP 100PF 10%
C27	1-162-521-11	(WG,IT)...CERAMIC CHIP 680PF 20%
C28	1-124-499-11	CAP, ELECT 1.0MF 20% 50V
C29	1-162-516-11	(WG,IT)...CERAMIC CHIP 100PF 10% 50V
C30	1-124-499-11	CAP, ELECT 1.0MF 20% 50V
C31	1-124-902-00	CAP, ELECT 0.47MF 20% 50V
C32	1-124-463-00	CAP, ELECT 0.1MF 20% 50V
C33	1-130-481-00	(AEP,UK,WG,IT)...CAP, PE TEREPHTHAL 0.0068MF 5% 50V
C33	1-130-482-00	(US,Canadian)....CAP, PE TEREPHTHAL 0.0082MF 5% 50V
C34	1-123-382-00	CAP, ELECT 3.3MF 20% 50V
C35	1-130-481-00	(AEP,UK,WG,IT)...CAP, PE TEREPHTHAL 0.0068MF 5% 50V
C35	1-130-482-00	(US,Canadian)....CAP, PE TEREPHTHAL 0.0082MF 5% 50V
C36	1-123-382-00	CAP, ELECT 3.3MF 20% 50V
C37	1-123-875-11	CAP, ELECT 10MF 20% 50V
C39	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C40	1-124-463-00	CAP, ELECT 0.1MF 20% 50V
C41	1-123-875-11	CAP, ELECT 10MF 20% 50V
C42	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C43	1-126-176-11	CAP, ELECT 220MF 20% 10V

odel



Remarks

ANEL
ANEL
ANEL

TUNER
TUNER
TUNER

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...
- WG: West Germany model
- IT : Italian model

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description
901	*A-4333-327-A	(US,Canadian)...MOUNTED PCB, PANEL
	*A-4333-328-A	(IT)............MOUNTED PCB, PANEL
	*A-4333-329-A	(AEP,UK,WG).....MOUNTED PCB, PANEL
902	*A-4303-186-A	(US, Canadian)...MOUNTED PCB, TUNER
	*A-4303-187-A	(AEP,UK).........MOUNTED PCB, TUNER
	*A-4303-188-A	(WG, IT).........MOUNTED PCB, TUNER
C1	1-162-294-31	CERAMIC CHIP 0.001MF 20% 25V
C2	1-124-477-11	CAP, ELECT 47MF 20% 16V
C3	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C4	1-162-294-31	CERAMIC CHIP 0.001MF 20% 25V
C5	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C6	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C7	1-163-059-00	(WG,IT)...CERAMIC MELF 0.01MF 20% 16V
C8	1-163-059-00	(WG,IT)...CERAMIC MELF 0.01MF 20% 16V
C9	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C21	1-101-006-00	CAP, CERAMIC 0.047MF F 20% 50V
C22	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C23	1-124-477-11	CAP, ELECT 47MF 20% 16V
C24	1-123-382-00	CAP, ELECT 3.3MF 20% 50V
C25	1-163-063-00	CERAMIC MELF 0.022MF 25V
C26	1-162-527-11	CERAMIC CHIP 0.0068MF 20% 12V
C27	1-162-516-11	(US,Canadian,AEP,UK) ...CERAMIC CHIP 100PF 10% 50V
C27	1-162-521-11	(WG,IT)...CERAMIC CHIP 680PF 20% 50V
C28	1-124-499-11	CAP, ELECT 1.0MF 20% 50V
C29	1-162-516-11	(WG,IT)...CERAMIC CHIP 100PF 10% 50V
C30	1-124-499-11	CAP, ELECT 1.0MF 20% 50V
C31	1-124-902-00	CAP, ELECT 0.47MF 20% 50V
C32	1-124-463-00	CAP, ELECT 0.1MF 20% 50V
C33	1-130-481-00	(AEP,UK,WG,IT)...CAP, PE TEREPHTHALATE 0.0068MF 5% 50V
C33	1-130-482-00	(US,Canadian)....CAP, PE TEREPHTHALATE 0.0082MF 5% 50V
C34	1-123-382-00	CAP, ELECT 3.3MF 20% 50V
C35	1-130-481-00	(AEP,UK,WG,IT)...CAP, PE TEREPHTHALATE 0.0068MF 5% 50V
C35	1-130-482-00	(US,Canadian)....CAP, PE TEREPHTHALATE 0.0082MF 5% 50V
C36	1-123-382-00	CAP, ELECT 3.3MF 20% 50V
C37	1-123-875-11	CAP, ELECT 10MF 20% 50V
C39	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C40	1-124-463-00	CAP, ELECT 0.1MF 20% 50V
C41	1-123-875-11	CAP, ELECT 10MF 20% 50V
C42	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C43	1-126-176-11	CAP, ELECT 220MF 20% 10V
C44	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C45	1-123-382-00	CAP, ELECT 3.3MF 20% 50V
C46	1-162-524-11	CERAMIC CHIP 0.0022MF 20% 25V
C47	1-162-294-31	(WG,IT)...CERAMIC CHIP 0.001MF 20% 25V
C48	1-123-382-00	CAP, ELECT 3.3MF 20% 50V
C49	1-162-524-11	CERAMIC CHIP 0.0022MF 20% 25V
C50	1-162-294-31	(WG,IT)...CERAMIC CHIP 0.001MF 20% 25V
C51	1-124-477-11	CAP, ELECT 47MF 20% 16V
C53	1-102-951-00	(AEP,UK,WG,IT)...CERAMIC 15PF 5% 50V
C61	1-163-063-00	CERAMIC MELF 0.022MF 25V
C62	1-163-063-00	CERAMIC MELF 0.022MF 25V
C63	1-163-063-00	CERAMIC MELF 0.022MF 25V
C64	1-163-063-00	CERAMIC MELF 0.022MF 25V
C65	1-163-063-00	(AEP,UK,WG,IT)...CERAMIC MELF 0.022MF 25V
C66	1-163-063-00	(AEP,UK,WG,IT)...CERAMIC MELF 0.022MF 25V
C67	1-102-120-00	(AEP,UK,WG,IT)...CAP, CERAMIC 0.0018MF 10% 50V
C68	1-162-523-11	(AEP,UK,WG,IT)...CERAMIC CHIP 0.0015MF 20% 25V
C69	1-163-063-00	(AEP,UK,WG,IT)...CERAMIC MELF 0.022MF 25V
C70	1-163-063-00	(AEP,UK,WG,IT)...CERAMIC MELF 0.022MF 25V
C71	1-163-063-00	(AEP,UK,WG,IT)...CERAMIC MELF 0.022MF 25V
C72	1-163-063-00	(AEP,UK,WG,IT)...CERAMIC MELF 0.022MF 25V
C73	1-163-063-00	(AEP,UK,WG,IT)...CERAMIC MELF 0.022MF 25V
C81	1-102-961-00	CAP, CERAMIC 27PF 5% 50V
C82	1-102-961-00	CAP, CERAMIC 27PF 5% 50V
C83	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C84	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C85	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C86	1-124-477-11	CAP, ELECT 47MF 20% 16V
C87	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C88	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C101	1-124-925-11	CAP, ELECT 2.2MF 20% 50V
C102	1-124-463-00	CAP, ELECT 0.1MF 20% 50V
C103	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C104	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C105	1-124-477-11	CAP, ELECT 47MF 20% 16V
C106	1-136-173-00	(AEP,UK,WG,IT)...CAP, METALIZED FILM 0.47MF 5% 50V
C107	1-124-463-00	(AEP,UK,WG,IT)...CAP, ELECT 0.1MF 20% 50V
C108	1-101-005-00	(AEP,UK,WG,IT)...CERAMIC 0.022MF 50V
C701	1-125-486-11	CAP,DOUBLE LAYERS 0.22F 5.5V
C702	1-136-173-00	FILM 0.47MF 5% 50V
C703	1-161-379-00	CERAMIC 0.01MF 20% 16V
C704	1-126-094-11	ELECT 4.7MF 20% 25V
C705	1-162-200-31	CERAMIC 11PF 5% 50V
C706	1-162-200-31	CERAMIC 11PF 5% 50V
C707	1-136-173-00	FILM 0.47MF 5% 50V
C708	1-136-173-00	FILM 0.47MF 5% 50V
C709	1-164-159-11	CERAMIC 0.1MF 50V
C710	1-164-159-11	CERAMIC 0.1MF 50V
CC1	1-249-366-11	CARBON MELF 0 5% 1/5W
CF1	1-567-389-41	FILTER, CERAMIC
CF2	1-567-389-41	FILTER, CERAMIC
CF3	1-567-389-41	(WG,IT)...FILTER, CERAMIC
CFT21	1-404-853-11	TRANSFORMER, IF (CERAMIC FILTER)
CN701	*1-568-279-11	SOCKET, CONNECTOR 4P
CN702	*1-568-281-11	SOCKET, CONNECTOR 6P
CN703	*1-568-281-11	SOCKET, CONNECTOR 6P
D61	8-719-000-26	(AEP,UK,WG,IT)...DIODE US1060M
D701	8-719-000-26	(AEP,UK,WG,IT)...DIODE US1060M
D703	8-719-000-26	(IT)...DIODE US1060M
D705	8-719-000-26	DIODE US1060M
D706	3-719-000-26	DIODE US1060M
D707	8-719-000-26	DIODE US1060M
D708	8-719-000-26	DIODE US1060M
D709	8-719-000-26	DIODE US1060M
D710	8-719-000-26	DIODE US1060M
D711	8-719-000-26	DIODE US1060M
D712	8-719-000-26	DIODE US1060M
D713	8-719-000-26	DIODE US1060M
D714	8-719-000-26	DIODE US1060M
D715	8-719-000-26	DIODE US1060M
D716	8-719-000-26	DIODE US1060M
D717	8-719-000-26	DIODE US1060M
D718	8-719-000-26	DIODE US1060M
D719	8-719-000-26	DIODE US1060M
D720	8-719-000-26	DIODE US1060M
D721	8-719-000-26	DIODE US1060M
D722	8-719-000-26	DIODE US1060M
D723	8-719-000-26	DIODE US1060M
D724	8-719-000-26	DIODE US1060M
FE1	1-463-857-11	(WG,IT)......FRONT END (FM)
FE1	1-463-862-21	(US,Canadian,AEP,UK) ...FRONT END (FM)
FE61	1-236-461-11	(US,Canadian)....ENCAPSULATED COMPONENT (MW RF)
FE61	1-236-462-11	(AEP,UK,WG,IT)...ENCAPSULATED COMPONENT (MW RF)
FE62	1-236-463-11	(AEP,UK,WG,IT)...ENCAPSULATED COMPONENT (LW RF)
FL701	1-519-517-11	INDICATOR TUBE, FLUORESCENT
IC21	8-759-821-45	IC LA1851N
IC81	8-759-820-91	IC LC7218
IC701	8-759-234-35	IC TMP47C670N-1283
IC702	8-749-920-59	IC A1QH3020S
L1	1-410-521-11	MICRO INDUCTOR (100UH)
L2	1-410-521-11	(WG,IT)....MICRO INDUCTOR (100UH)
L21	1-407-500-00	(AEP,UK,WG,IT)...MICRO INDUCTOR(4.7mH)
L21	1-410-171-11	(US,Canadian)....MICRO INDUCTOR (1mH)
L61	1-410-525-11	(AEP,UK,WG,IT)...MICRO INDUCTOR(220UH)
L701	1-410-521-11	INDUCTOR 100UH
L702	1-410-521-11	INDUCTOR 100UH
L703	1-408-080-00	INDUCTOR 100UH
L704	1-408-080-00	INDUCTOR 100UH
LPF22	1-235-164-00	FILTER, LOW PASS
LPF21	1-235-164-00	FILTER, LOW PASS
Q1	8-729-266-93	TRANSISTOR 2SC2669
Q2	8-729-266-93	TRANSISTOR 2SC2669
Q3	8-729-266-93	(WG,IT)...TRANSISTOR 2SC2669
Q4	8-729-266-93	(WG,IT)...TRANSISTOR 2SC2669
Q21	8-729-820-23	TRANSISTOR 2SC3330S
Q22	8-729-820-23	TRANSISTOR 2SC3330S
Q23	8-729-900-61	TRANSISTOR DTA114ES
Q24	8-729-900-80	TRANSISTOR DTC114ES
Q26	8-729-900-80	TRANSISTOR DTC114ES
Q61	8-729-900-80	TRANSISTOR DTC114ES
Q62	8-729-900-80	(AEP,UK,WG,IT)...TRANSISTOR DTC114ES
Q63	8-729-900-80	(AEP,UK,WG,IT)...TRANSISTOR DTC114ES
Q64	8-729-820-23	(AEP,UK,WG,IT)...TRANSISTOR 2SC3330S
Q65	8-729-820-10	(AEP,UK,WG,IT)...TRANSISTOR 2SA1317-SU
Q66	8-729-900-80	(AEP,UK,WG,IT)...TRANSISTOR DTC114ES
Q81	8-729-900-61	TRANSISTOR DTA114ES
Q82	8-729-900-80	TRANSISTOR DTC114ES
Q83	8-729-202-67	TRANSISTOR 2SK246GR3
Q84	8-729-201-84	TRANSISTOR 2SC3112B
Q85	8-729-202-67	(AEP,UK,WG,IT)...TRANSISTOR 2SK246GR3
Q86	8-729-201-84	(AEP,UK,WG,IT)...TRANSISTOR 2SC3112B
Q701	8-729-900-89	TRANSISTOR DTC144ES
Q702	8-729-900-89	TRANSISTOR DTC144ES
Q703	8-729-900-89	TRANSISTOR DTC144ES
R1	⚠.1-249-397-11	(WG,IT)...RES, CARBON (SMALL) 22 5% 1/4W
R1	⚠.1-249-401-11	(US,Canadian,AEP,UK)...RES, CARBON (SMALL) 47 5% 1/4W
R2	1-249-329-11	CARBON MELF 330 5% 1/8W
R3	1-249-329-11	CARBON MELF 330 5% 1/8W
R4	1-249-329-11	CARBON MELF 330 5% 1/8W
R5	1-249-329-11	CARBON MELF 330 5% 1/8W
R6	1-249-350-11	CARBON MELF 18K 5% 1/8W
R7	1-249-329-11	CARBON MELF 330 5% 1/8W
R8	1-249-332-11	CARBON MELF 560 5% 1/8W
R9	1-249-352-11	CARBON MELF 27K 5% 1/8W
R10	1-249-329-11	(WG,IT)...CARBON MELF 330 5% 1/8W
R11	1-249-350-11	(WG,IT)...CARBON MELF 18K 5% 1/8W
R12	1-249-329-11	(WG,IT)...CARBON MELF 330 5% 1/8W
R13	1-249-334-11	(WG,IT)...CARBON MELF 820 5% 1/8W
R14	1-249-352-11	(WG,IT)...CARBON MELF 27K 5% 1/8W
R15	1-249-347-11	(WG,IT)...CARBON MELF 10K 5% 1/8W
R16	1-249-343-11	(WG,IT)...CARBON MELF 4.7K 5% 1/8W
R21	⚠.1-249-404-00	RES, CARBON (SMALL) 82 5% 1.4W
R23	1-249-335-11	CARBON MELF 1K 5% 1/8W
R24	1-249-353-11	CARBON MELF 33K 5% 1/8W

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

ELECT
20% 50V
IC
50V
F 5.5V
5% 50V
20% 16V
20% 25V

5% 50V
5% 50V
5% 50V

5% 50V
50V
50V

1/5W

MIC

C FILTER)

US1060M
US1060M

(FM)

(FM)

ULATED
ENT (MW RF)
ULATED
ENT (MW RF)

ULATED
ENT (LW RF)

CENT

Ref.No.	Part No.	Description
L1	1-410-521-11	MICRO INDUCTOR (100UH)
L2	1-410-521-11	(WG,IT)....MICRO INDUCTOR (100UH)
L21	1-407-500-00	(AEP,UK,WG,IT)...MICRO INDUCTOR(4.7mH)
L21	1-410-171-11	(US,Canadian)....MICRO INDUCTOR (1mH)
L61	1-410-525-11	(AEP,UK,WG,IT)...MICRO INDUCTOR(220UH)
L701	1-410-521-11	INDUCTOR 100UH
L702	1-410-521-11	INDUCTOR 100UH
L703	1-408-080-00	INDUCTOR 100UH
L704	1-408-080-00	INDUCTOR 100UH
LPF22	1-235-164-00	FILTER, LOW PASS
LPF21	1-235-164-00	FILTER, LOW PASS
Q1	8-729-266-93	TRANSISTOR 2SC2669
Q2	8-729-266-93	TRANSISTOR 2SC2669
Q3	8-729-266-93	(WG,IT)...TRANSISTOR 2SC2669
Q4	8-729-266-93	(WG,IT)...TRANSISTOR 2SC2669
Q21	8-729-820-23	TRANSISTOR 2SC3330S
Q22	8-729-820-23	TRANSISTOR 2SC3330S
Q23	8-729-900-61	TRANSISTOR DTA114ES
Q24	8-729-900-80	TRANSISTOR DTC114ES
Q26	8-729-900-80	TRANSISTOR DTC114ES
Q61	8-729-900-80	TRANSISTOR DTC114ES
Q62	8-729-900-80	(AEP,UK,WG,IT)...TRANSISTOR DTC114ES
Q63	8-729-900-80	(AEP,UK,WG,IT)...TRANSISTOR DTC114ES
Q64	8-729-820-23	(AEP,UK,WG,IT)...TRANSISTOR 2SC3330S
Q65	8-729-820-10	(AEP,UK,WG,IT)...TRANSISTOR 2SA1317-SU
Q66	8-729-900-80	(AEP,UK,WG,IT)...TRANSISTOR DTC114ES
Q81	8-729-900-61	TRANSISTOR DTA114ES
Q82	8-729-900-80	TRANSISTOR DTC114ES
Q83	8-729-202-67	TRANSISTOR 2SK246GR3
Q84	8-729-201-84	TRANSISTOR 2SC3112B
Q85	8-729-202-67	(AEP,UK,WG,IT)...TRANSISTOR 2SK246GR3
Q86	8-729-201-84	(AEP,UK,WG,IT)...TRANSISTOR 2SC3112B
Q701	8-729-900-89	TRANSISTOR DTC144ES
Q702	8-729-900-89	TRANSISTOR DTC144ES
Q703	8-729-900-89	TRANSISTOR DTC144ES
R1	⚠.1-249-397-11	(WG,IT)...RES, CARBON (SMALL) 22 5% 1/4W
R1	⚠.1-249-401-11	(US,Canadian,AEP,UK)...RES, CARBON (SMALL) 47 5% 1/4W
R2	1-249-329-11	CARBON MELF 330 5% 1/8W
R3	1-249-329-11	CARBON MELF 330 5% 1/8W
R4	1-249-329-11	CARBON MELF 330 5% 1/8W
R5	1-249-329-11	CARBON MELF 330 5% 1/8W
R6	1-249-350-11	CARBON MELF 18K 5% 1/8W
R7	1-249-329-11	CARBON MELF 330 5% 1/8W
R8	1-249-332-11	CARBON MELF 560 5% 1/8W
R9	1-249-352-11	CARBON MELF 27K 5% 1/8W
R10	1-249-329-11	(WG,IT)...CARBON MELF 330 5% 1/8W
R11	1-249-350-11	(WG,IT)...CARBON MELF 18K 5% 1/8W
R12	1-249-329-11	(WG,IT)...CARBON MELF 330 5% 1/8W
R13	1-249-334-11	(WG,IT)...CARBON MELF 820 5% 1/8W
R14	1-249-352-11	(WG,IT)...CARBON MELF 27K 5% 1/8W
R15	1-249-347-11	(WG,IT)...CARBON MELF 10K 5% 1/8W
R16	1-249-343-11	(WG,IT)...CARBON MELF 4.7K 5% 1/8W
R21	⚠.1-249-404-00	RES, CARBON (SMALL) 82 5% 1.4W
R23	1-249-335-11	CARBON MELF 1K 5% 1/8W
R24	1-249-353-11	CARBON MELF 33K 5% 1/8W

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description
R22	1-249-428-11	(US,Canadian)....RES, CARBON (SMALL) 8.2K 5% 1/4W
R22	1-249-433-11	(AEP,UK,WG,IT)...RES, CARBON (SMALL) 22K 5% 1/4W
R25	1-249-428-11	RES, CARBON (SMALL) 8.2K 5% 1/4W
R27	1-249-350-11	CARBON MELF 18K 5% 1/8W
R28	1-249-423-11	RES, CARBON (SMALL) 3.3K 5% 1/4W
R29	1-249-347-11	CARBON MELF 10K 5% 1/8W
R31	1-249-331-11	CARBON MELF 470 5% 1/8W
R32	1-249-347-11	CARBON MELF 10K 5% 1/8W
R33	1-249-347-11	CARBON MELF 10K 5% 1/8W
R34	1-249-437-11	RES, CARBON (SMALL) 47K 5% 1/4W
R35	1-249-355-11	CARBON MELF 47K 5% 1/8W
R37	1-249-359-11	CARBON MELF 100K 5% 1/8W
R38	1-249-363-11	CARBON MELF 220K 5% 1/8W
R39	1-249-339-11	CARBON MELF 2.2K 5% 1/8W
R40	1-249-338-11	CARBON MELF 1.8K 5% 1/8W
R41	1-249-344-11	CARBON MELF 5.6K 5% 1/8W
R42	1-249-359-11	CARBON MELF 100K 5% 1/8W
R43	1-249-363-11	CARBON MELF 220K 5% 1/8W
R44	1-249-339-11	CARBON MELF 2.2K 5% 1/8W
R45	1-249-338-11	CARBON MELF 1.8K 5% 1/8W
R46	1-249-344-11	CARBON MELF 5.6K 5% 1/8W
R47	⚠.1-249-409-11	RES, CARBON (SMALL) 220 5% 1/4W
R61	1-249-359-11	CARBON MELF 100K 5% 1/8W
R62	1-249-355-11	CARBON MELF 47K 5% 1/8W
R63	1-249-315-11	(US,Canadian)....CARBON MELF 22 5% 1/8W
R64	1-249-351-11	(AEP,UK,WG,IT)...CARBON MELF 22K 5% 1/8W
R65	1-249-355-11	(AEP,UK,WG,IT)...CARBON MELF 47K 5% 1/8W
R66	1-215-493-00	(AEP,UK,WG,IT)...CARBON MELF 1M 5% 1/5W
R67	1-249-359-11	(AEP,UK,WG,IT)...CARBON MELF 100K 5% 1/8W
R68	1-249-352-11	(AEP,UK,WG,IT)...CARBON MELF 27K 5% 1/8W
R69	1-249-351-11	(AEP,UK,WG,IT)...CARBON MELF 22K 5% 1/8W
R70	1-249-331-11	(AEP,UK,WG,IT)...CARBON MELF 470 5% 1/8W
R71	1-249-339-11	(AEP,UK,WG,IT)...CARBON MELF 2.2K 5% 1/8W
R72	1-249-351-11	(AEP,UK,WG,IT)...CARBON MELF 22K 5% 1/8W
R73	1-249-343-11	(AEP,UK,WG,IT)...CARBON MELF 4.7K 5% 1/8W

Ref.No.	Part No.	Description
R74	1-249-347-11	(AEP,UK,WG,IT)...CARBON MELF 10K 5% 1/8W
R75	1-249-343-11	(AEP,UK,WG,IT)...CARBON MELF 4.7K 5% 1/8W
R81	1-249-335-11	CARBON MELF 1K 5% 1/8W
R82	1-249-335-11	CARBON MELF 1K 5% 1/8W
R83	1-249-335-11	CARBON MELF 1K 5% 1/8W
R84	1-249-335-11	CARBON MELF 1K 5% 1/8W
R85	1-249-347-11	CARBON MELF 10K 5% 1/8W
R86	1-249-335-11	CARBON MELF 1K 5% 1/8W
R87	1-249-347-11	CARBON MELF 10K 5% 1/8W
R88	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R89	1-249-335-11	CARBON MELF 1K 5% 1/8W
R90	1-249-347-11	CARBON MELF 10K 5% 1/8W
R91	1-249-335-11	CARBON MELF 1K 5% 1/8W
R92	⚠.1-249-401-11	RES, CARBON (SMALL) 47 5% 1/4W
R101	1-249-341-11	CARBON MELF 3.3K 5% 1/8W
R102	1-249-332-11	CARBON MELF 560 5% 1/8W
R103	1-249-335-11	CARBON MELF 1K 5% 1/8W
R104	1-249-328-11	CARBON MELF 270 5% 1/8W
R105	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R106	1-249-339-11	CARBON MELF 2.2K 5% 1/8W
R107	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R108	1-249-323-11	CARBON MELF 100 5% 1/8W
R109	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R110	1-249-405-11	RES, CARBON (SMALL) 100 5% 1/4W
R111	1-249-341-11	(AEP,UK,WG,IT)...CARBON MELF 3.3K 5% 1/8W
R112	1-249-332-11	(AEP,UK,WG,IT)...CARBON MELF 560 5% 1/8W
R113	1-249-335-11	(AEP,UK,WG,IT)...CARBON MELF 1K 5% 1/8W
R114	1-249-328-11	(AEP,UK,WG,IT)...CARBON MELF 270 5% 1/8W
R115	1-249-351-11	(AEP,UK,WG,IT)...CARBON MELF 22K 5% 1/8W
R116	1-249-339-11	(AEP,UK,WG,IT)...CARBON MELF 2.2K 5% 1/8W
R117	1-249-343-11	(AEP,UK,WG,IT)...CARBON MELF 4.7K 5% 1/8W
R118	1-249-323-11	(AEP,UK,WG,IT)...CARBON MELF 100 5% 1/8W
R701	1-249-405-11	CARBON 100 5% 1/4W
R702	1-249-438-11	CARBON 56K 5% 1/4W
R703	1-249-435-11	CARBON 33K 5% 1/4W
R704	1-249-429-11	CARBON 10K 5% 1/4W
R705	1-249-433-11	CARBON 22K 5% 1/4W

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description			
R706	1-249-438-11	CARBON	56K	5%	1/4W
R707	1-249-435-11	CARBON	33K	5%	1/4W
R708	1-249-441-11	CARBON	100K	5%	1/4W
R709	1-249-429-11	CARBON	10K	5%	1/4W
R710	1-249-429-11	CARBON	10K	5%	1/4W
R711	1-249-429-11	CARBON	10K	5%	1/4W
R712	1-249-429-11	CARBON	10K	5%	1/4W
R713	1-249-429-11	CARBON	10K	5%	1/4W
R714	1-249-429-11	CARBON	10K	5%	1/4W
R715	1-249-429-11	CARBON	10K	5%	1/4W
R716	1-249-429-11	CARBON	10K	5%	1/4W
R717	1-249-423-11	CARBON	3.3K	5%	1/4W
R718	1-249-429-11	CARBON	10K	5%	1/4W
R719	1-249-429-11	CARBON	10K	5%	1/4W
R720	1-249-429-11	CARBON	10K	5%	1/4W
R721	1-249-411-11	CARBON	330	5%	1/4W
R722	1-249-441-11	CARBON	100K	5%	1/4W
R723	1-249-441-11	CARBON	100K	5%	1/4W
R724	1-249-441-11	CARBON	100K	5%	1/4W
R725	1-249-441-11	CARBON	100K	5%	1/4W
R726	1-249-441-11	CARBON	100K	5%	1/4W
R727	1-249-421-11	CARBON	2.2K	5%	1/4W
RB701	1-233-125-11	COMPOSITION CIRCUIT BLOCK (10KX4)			
RV21	1-238-013-11	(US,Canadian,AEP,UK)...RES, ADJ, CARBON 2.2K (STEREO SEPARATION)			
RV21	1-238-015-51	(WG,IT)...RES, ADJ, CARBON 4.7K (STEREO SEPARATION)			
RV22	1-238-017-11	RES, ADJ, CARBON 22K (AM TUNED)			
RV24	1-238-017-11	(US,Canadian,AEP,UK) ...RES, ADJ, CARBON 22K (FM TUNED)			
RV24	1-238-019-11	(WG,IT)...RES, ADJ, CARBON 47K (FM TUNED)			

Ref.No.	Part No.	Description
S701	1-554-596-21	SWITCH, KEY BOARD (1)
S702	1-554-596-21	SWITCH, KEY BOARD (2)
S703	1-554-596-21	SWITCH, KEY BOARD (3)
S704	1-554-596-21	SWITCH, KEY BOARD (4)
S705	1-554-596-21	SWITCH, KEY BOARD (5)
S706	1-554-596-21	SWITCH, KEY BOARD (6)
S707	1-554-596-21	SWITCH, KEY BOARD (7)
S708	1-554-596-21	SWITCH, KEY BOARD (8)
S709	1-554-596-21	SWITCH, KEY BOARD (9)
S710	1-554-596-21	SWITCH, KEY BOARD (0)
S711	1-554-596-21	SWITCH, KEY BOARD (STEREO MUTING)
S712	1-554-596-21	SWITCH, KEY BOARD (MEMORY SCAN)
S713	1-554-596-21	SWITCH, KEY BOARD (MERORY NEXT)
S714	1-554-596-21	SWITCH, KEY BOARD (SHIFT)
S715	1-554-596-21	SWITCH, KEY BOARD (BAND)
S716	1-554-596-21	SWITCH, KEY BOARD (PRESET TUNING)
S717	1-554-596-21	SWITCH, KEY BOARD (TIME/FREQUENCY)
S718	1-554-596-21	SWITCH, KEY BOARD (TIMER/TUNER +)
S719	1-554-596-21	SWITCH, KEY BOARD (TIMER/TUNER -)
S720	1-554-596-21	SWITCH, KEY BOARD (CLOOK)
S721	1-554-596-21	SWITCH, KEY BOARD (TIMER CONTROL)
S722	1-554-596-21	SWITCH, KEY BOARD (TIMER SET)
S723	1-554-596-21	SWITCH, KEY BOARD (SLEEP)
T21	1-404-807-11	TRANSFORMER, DISCRIMINATOR
T23	1-236-465-11	(WG,IT)...ENCAPSULATED COMPONENT
TM1	1-536-708-00	(US,Canadian)....TERMINAL BOARD (ANT)
TM1	*1-537-138-21	(AEP,UK).........TERMINAL BOARD (ANT)
TM1	*1-537-138-31	(WG,IT)..........TERMINAL BOARD (ANT)
TP1	*1-560-060-00	PIN, CONNECTOR 2P (NULL)
X701	1-567-821-21	VIBRATOR, CRYSTAL (4.19MHz)
XT81	1-577-126-11	VIBRATOR, CRYSTAL (7.2MHz)

TA-717/717M/818/818M

SERVICE MANUAL

US Model
AEP Model
UK Model
TA-717M/818M
Canadian Model
TA-717M
E Model
TA-717/818

TA-717/818 are the amplifier section in FH-717R/818R.

TA-717M/818M are the amplifier section in MHC2200/2200CD/3300/3300CD.

SONY
POWER
VOLUME
PHONO
TUNER
CD
TAPE
MHC-3300
HEADPHONES
GRAPHIC EQUALIZER
EQUALIZATION

Photo: TA-818M

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS (for US, Canadian model)

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:

With 6 ohm loads both channels driven, from 50 – 20,000 Hz; rated 22 watts: 717M, 30 watts: 818M per channel minimum RMS power, with no more than 1% total harmonic distortion from 250 milliwatts to rated output.

Continuous RMS power output (AEP, UK, West Germany, Italian model)
TA-717M
30 + 30 watts (6 ohms, at 1 kHz, 5% THD)
TA-818M
45 + 45 watts (6 ohms, at 1 kHz, 5% THD)

Peak music power output (E, Saudi Arabia model)
380 watts (5% THD, 6 ohms)

	Sensitivity	Impedance
AUX (US, Canadian model) (phono jacks)	450 mV	50 kilohms
CD (AEP, UK, E West Germany Italian, Saudi Arabia model) (phono jacks)		
MIC (minijack)	1 mV	600 ohms
PHONO (phono jacks)	2.5 mV	47 kilohms

Outputs

HEADPHONES (stereo minijack)	Accepts headphones of 8 ohms or more.
SPEAKER	Accepts speakers of 6 to 16 ohms.

Power requirements
US, Canadian model: 120 V AC, 60 Hz
AEP, UK, West Germany, Italian model: 220 V, 50/60 Hz
UK model: 240 V, 50 Hz
E model: 120, 220 or 240 V AC adjustable, 50/60 Hz

Power consumption

	TA-717/717M	TA-818/818M
US model	75 W	85 W
Canadian model	130 W	
AEP, UK, West Germany Italian model	85 W	105 W
UK model	165 W	225 W
E, Saudi Arabia model	100 W	105 W

Dimensions/Weight

	Dimensions* (w/h/d)	Weight
TA-717/717M	Approx. 225 x 120 x 270 mm (8 7/8 x 4 3/4 x 10 3/4 inches)	Approx. 3.8 kg (8 lb 6 oz) net
TA-818/818M		Approx. 4.3 kg (9 lb 8 oz) net

* incl. projecting parts and controls

MICROFILM

INTEGRATED STEREO AMPLIFIER

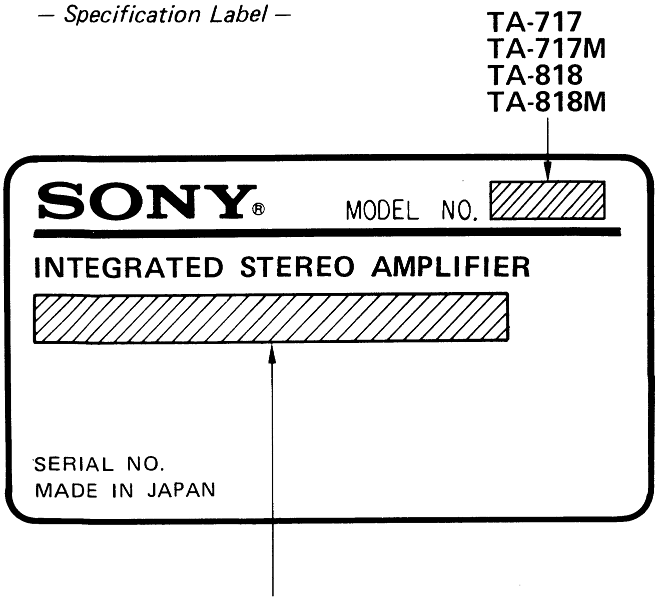
SONY®

SECTION 1

SERVICING NOTES

MODEL IDENTIFICATION

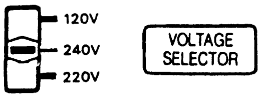
— Specification Label —



US, Canadian Model: AC: 120 V ~ 60 Hz
AEP, West Germany, Italian Model:
AC: 220 V ~ 50/60 Hz
UK Model: AC: 240 V ~ 50/60 Hz
E, Saudi Arabia Model: AC: 120/220/240 V ~ 50/60 Hz

On operating voltage

Before operating the unit, check that the operating voltage of your unit is identical with the voltage of your local power supply.

Where purchased	Operating voltage
US, Canadian Model	120 V AC
UK Model	240 V AC
AEP, West Germany Italian Model	220 V AC
E, Saudi Arabia Model	120 V, 220 V or 240 V AC adjustable by AC voltage selector 

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

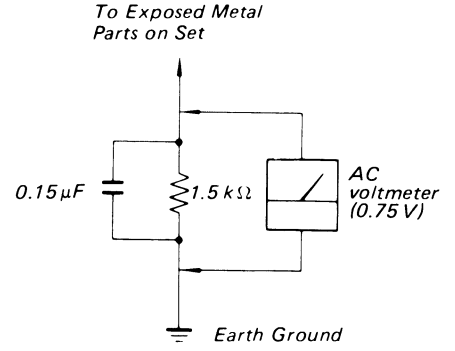


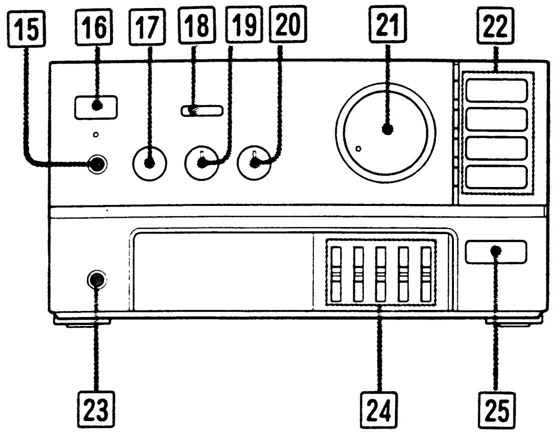
Fig. A. Using an AC voltmeter to check AC leakage.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 2
GENERAL

FUNCTION OF CONTROLS


15
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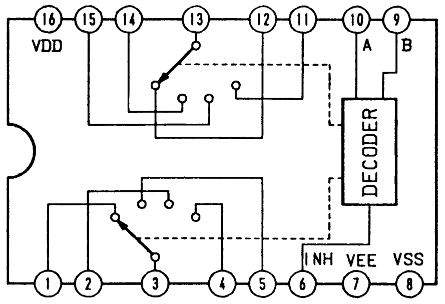
24
25

15 MIC (microphone) jack (minijack)
16 POWER switch
17 MIC LEVEL (microphone level) control
18 DBFB (Dynamic Bass Feedback) button
19 DBFB LEVEL control
20 BALANCE control
21 VOLUME control
22 Function selectors
23 HEADPHONES jack (stereo minijack)
24 GRAPHIC EQUALIZER controls
25 EQUALIZATION switch

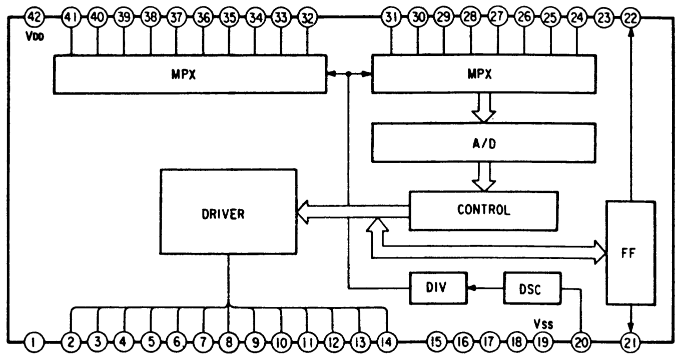
SECTION 3
DIAGRAMS

3-1. IC BLOCK DIAGRAMS

IC002 M4052BP


16
15
14
13
12
11
10
9
VDD
A
B
DECODER
INH
VEE
VSS
1
2
3
4
5
6
7
8

IC401 LC7566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41
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24
23
22
VDD
MPX
MPX
A/D
DRIVER
CONTROL
FF
DIV
DSC
VSS
1
2
3
4
5
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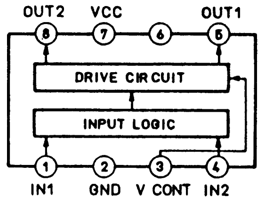
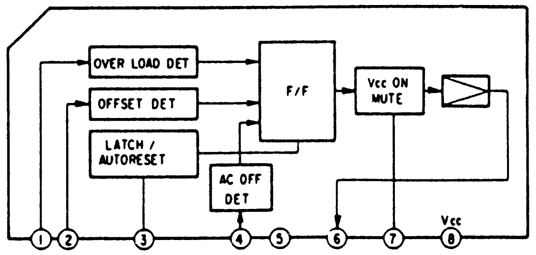
21

IC404 LB1639

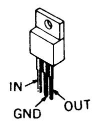

OUT2
VCC
OUT1
8
7
6
5
DRIVE CIRCUIT
INPUT LOGIC
1
2
3
4
IN1
GND
V CONT
IN2

IC802 µPC1237HA

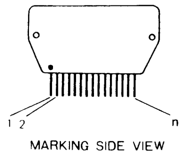

OVER LOAD DET
OFFSET DET
LATCH / AUTORESET
AC OFF DET
F/F
Vcc ON MUTE
Vcc
1
2
3
4
5
6
7
8

3-2. SEMICONDUCTOR LEAD LAYOUTS

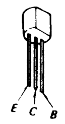
M5F7806
M5F7808
M5F7812
M5F7908



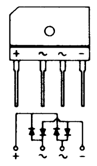
STK4142MK2
STK4152II


1 2
n
MARKING SIDE VIEW

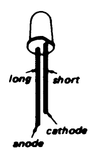
2SA733
2SC1387
2SC1841-PA
2SD1387



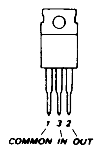
RBV-402-01
RBV-602-01



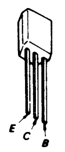
SEL1210W


long
short
cathode
anode

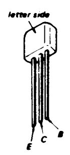
M5F7924


1 3 2
COMMON IN OUT

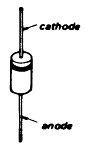
DTC114ES
2SC3400
2SC4048



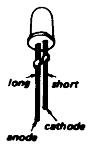
2SC2785


letter side
E
C
B

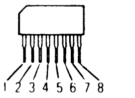
US1060M
UZL-7M3
UZP-3.3BB
UZ-4.3BSB
10E2N


cathode
anode

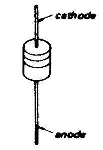
SEL1910W


long
short
cathode
anode

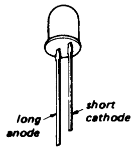
M5218L
µPC1237HA



HZS11B-3L


cathode
anode

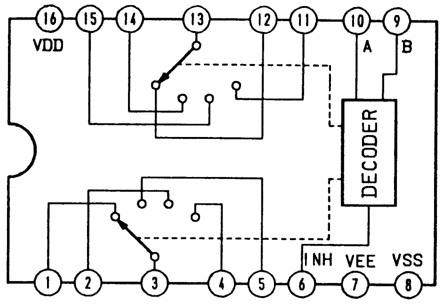
SEL4214W


long
anode
short
cathode

SECTION 3
DIAGRAMS

3-1. IC BLOCK DIAGRAMS

IC002 M4052BP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VDD
A
B
DECODER
INH
VEE
VSS
1
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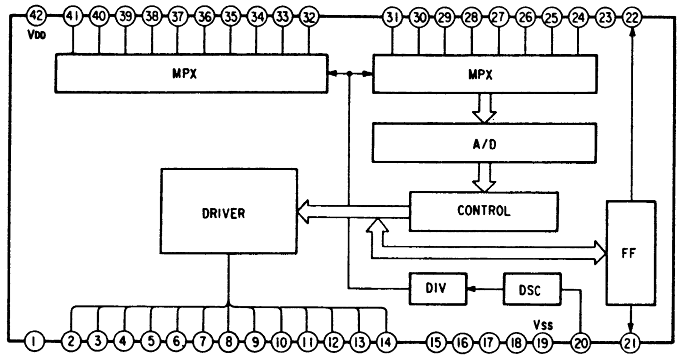
7
8

IC401 LC7566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25
24
23
22
VDD
MPX
MPX
A/D
DRIVER
CONTROL
FF
DIV
DSC
Vss
1
2
3
4
5
6
7
8
9
10
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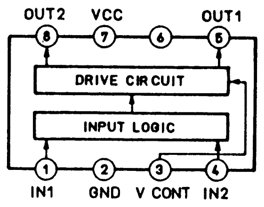
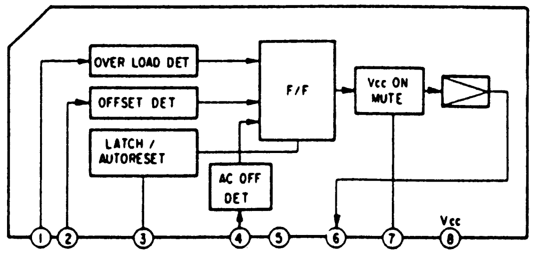
21

IC404 LB1639

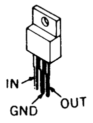

OUT2
VCC
OUT1
8
7
6
5
DRIVE CIRCUIT
INPUT LOGIC
1
2
3
4
IN1
GND
V CONT
IN2

IC802 μPC1237HA

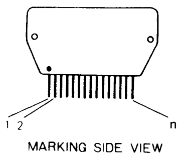

OVER LOAD DET
OFFSET DET
LATCH / AUTORESET
F/F
AC OFF DET
Vcc ON MUTE
Vcc
1
2
3
4
5
6
7
8

3-2. SEMICONDUCTOR LEAD LAYOUTS

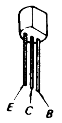
M5F7806
M5F7808
M5F7812
M5F7908



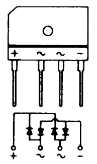
STK4142MK2
STK4152II


1 2
n
MARKING SIDE VIEW

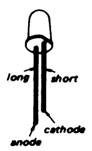
2SA733
2SC1387
2SC1841-PA
2SD1387



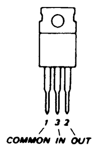
RBV-402-01
RBV-602-01



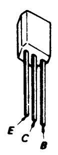
SEL1210W


long
short
cathode
anode

M5F7924


1 3 2
COMMON IN OUT

DTC114ES
2SC3400
2SC4048



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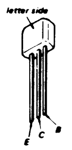
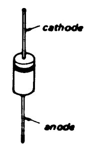
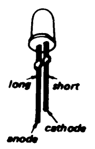

letter side
E
C
B

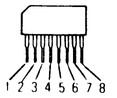
US1060M
UZL-7M3
UZP-3.3BB
UZ-4.3BSB
10E2N


cathode
anode

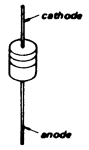
SEL1910W


long
short
cathode
anode

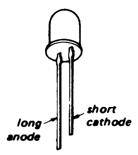
M5218L
μPC1237HA



HZS11B-3L


cathode
anode

SEL4214W


long
anode
short
cathode

Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- △ : internal component.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▬ : B+ Line
- ▬ ▬ ▬ : B– Line
- Voltages are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : CD

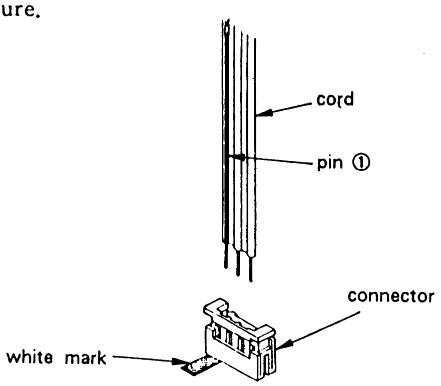
Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

● Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D101	G-2	IC001	H-8
D201	I-5	IC002	J-7
D202	I-5	IC003	J-2
D203	I-4	IC101	H-3
D204	I-4	IC201	H-6
D401	E-11	IC202	H-6
D402	E-11	IC203	J-4
D403	C-15	IC301	D-9
D404	B-9	IC302	C-9
D405	B-9	IC303	C-12
D406	C-9	IC351	E-8
D407	C-9	IC401	E-13
D408	B-13	IC402	C-11
D409	B-13	IC403	D-14
D410	B-13	IC801	C-19
D411	D-11	IC802	B-22
D412	D-13	IC901	H-20
D413	D-14	IC902	H-19
D414	D-12		
D415	D-11	Q101	I-4
D416	D-11	Q102	G-3
D417	B-13	Q301	C-13
D418	B-15	Q302	C-14
D419	C-11	Q303	C-5
D420	C-11	Q351	C-13
D421	E-14	Q353	C-5
D422	B-2	Q401	C-10
D423	C-12	Q402	B-15
D801	B-19	Q403	C-10
D821	B-18	Q404	E-15
D822	B-21	Q406	C-4
D851	B-19	Q801	B-20
D901	H-18	Q802	B-21
D902	G-17	Q901	G-18
D903	H-14		
D904	G-19		
D905	H-19		
D906	G-19		
D907	H-19		
D911	I-19		

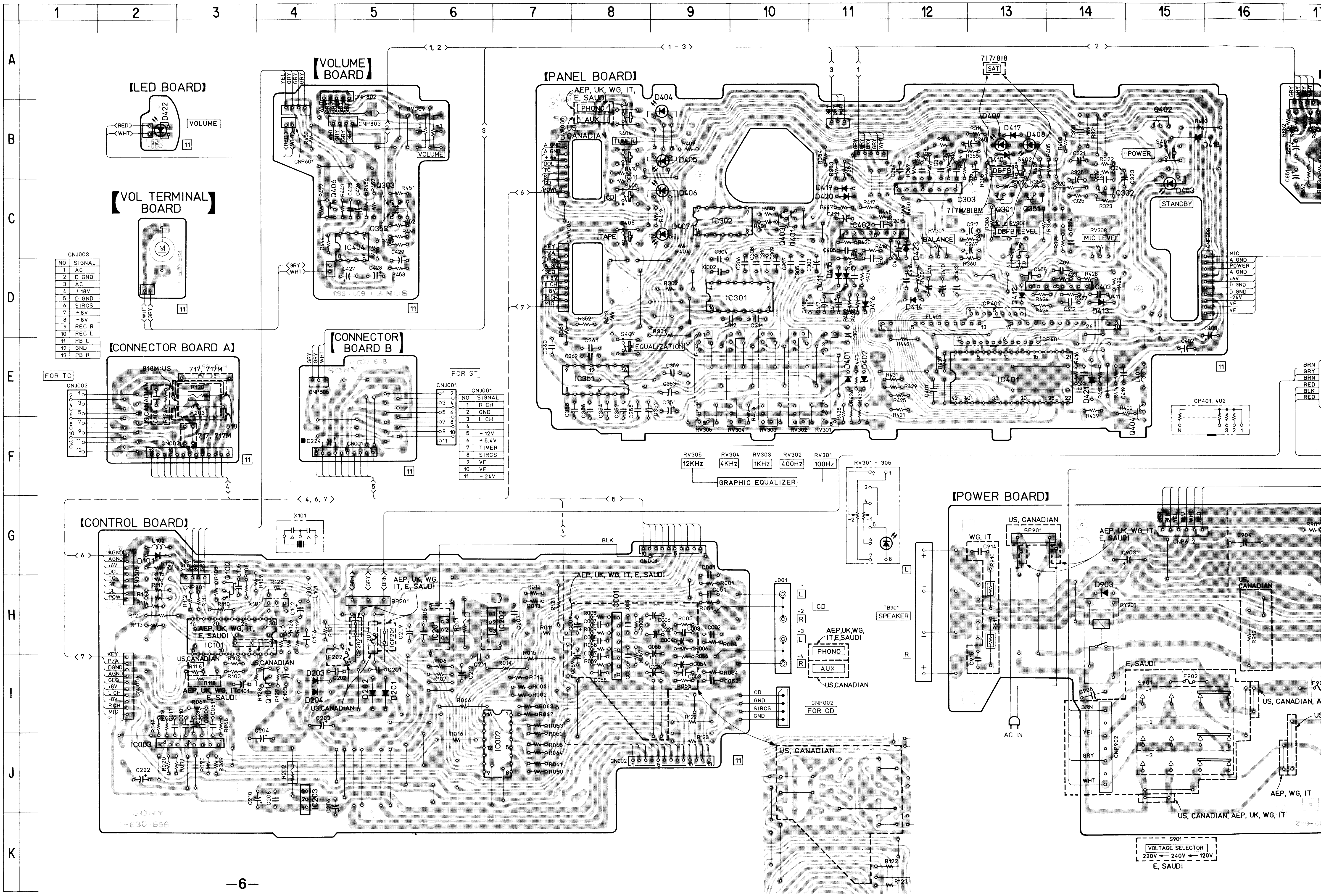
[Note on Inserting the Cord to the Connector on Tuner Board]

- Insert the cord to the connector fitting Pin ① of the cord in accordance with the white mark on the board at the connector as shown in the figure.


cord
pin ①
connector
white mark

3-3. PRINTED WIRING BOARDS

- See page 4 for Semiconductor Lead Layouts.

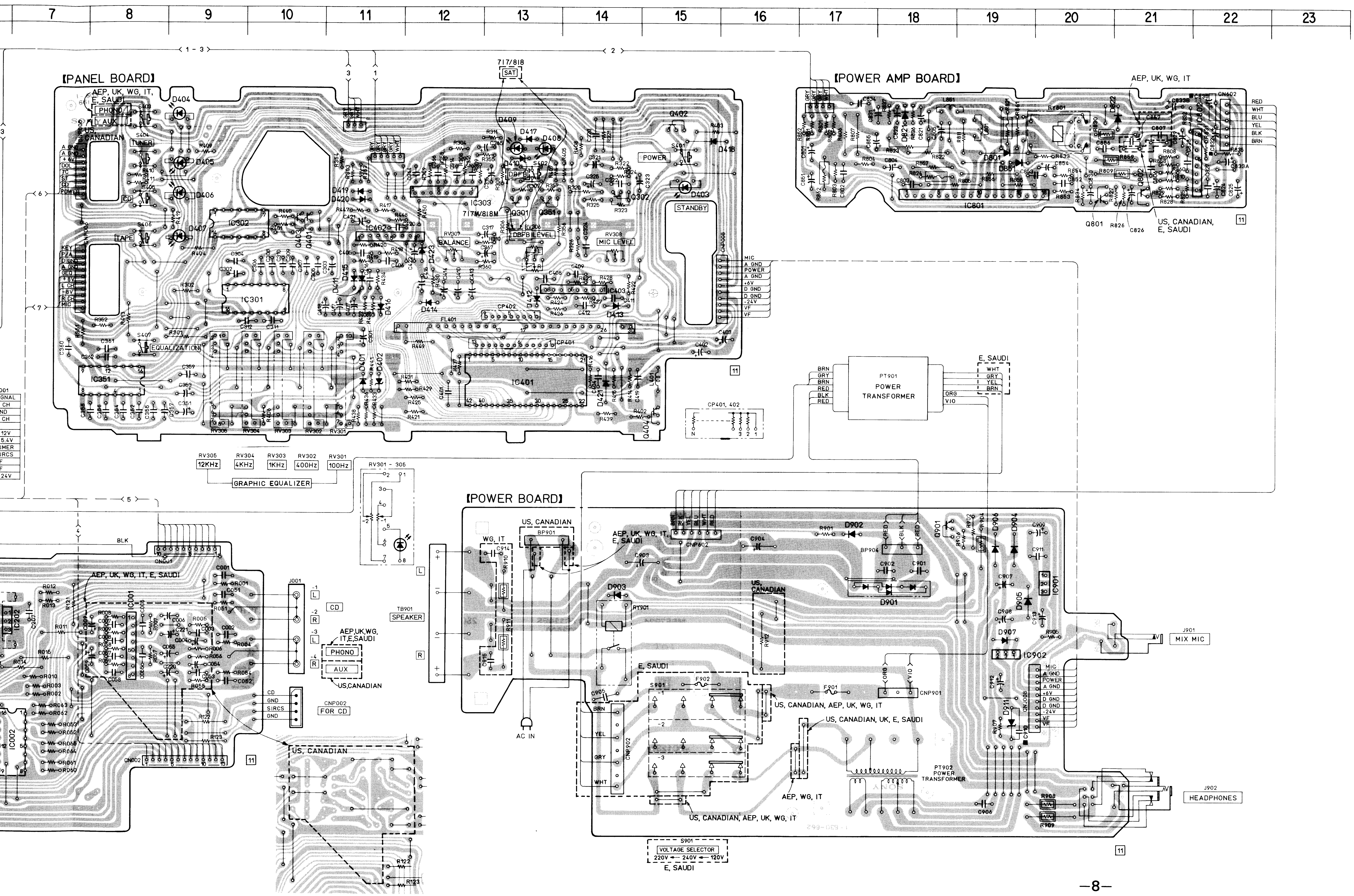

LED BOARD
VOLUME
D422
VOLUME BOARD
CNP802
CNP803
CNP601
RV309
Q406
Q303
Q353
IC404
VOL TERMINAL BOARD
CONNECTOR BOARD A
818M·US
717, 717M
818
US,CANADIAN
CN002
FOR TC
CONNECTOR BOARD B
CNP805
CN001
FOR ST
PANEL BOARD
AEP, UK, WG, IT, E, SAUDI
US, CANADIAN
PHONO
AUX
TUNER
CD
TAPE
EQUALIZATION
D404
D405
D406
D407
IC302
IC301
IC351
IC462
IC303
717M/818M
D409
D417
D408
D410
DBFB
DBFB LEVEL
Q301
Q351
BALANCE
MIC LEVEL
Q402
POWER
S401
D418
D403
STANDBY
IC403
D413
D414
FL401
CP402
CP401
IC401
D421
717/818
SAT
RV305
12KHz
RV304
4KHz
RV303
1KHz
RV302
400Hz
RV301
100Hz
GRAPHIC EQUALIZER
RV301 - 305
CP401, 402
CONTROL BOARD
X101
IC101
IC003
IC201
IC202
IC203
IC001
IC002
BP201
D203
D204
D202
D201
J001
CD
PHONO
AUX
AEP,UK,WG, IT,E,SAUDI
US,CANADIAN
CNP002
FOR CD
TB901
SPEAKER
L
R
POWER BOARD
US, CANADIAN
BP901
WG, IT
CNP602
D903
RY901
E, SAUDI
S901
F902
CNP902
AC IN
AEP, WG, IT
US, CANADIAN, AEP, UK, WG, IT
S901
VOLTAGE SELECTOR
220V ← 240V ← 120V
E, SAUDI
SONY
1-630-656
1-630-663
1-630-658

CNJ003

NO	SIGNAL
1	AC
2	D GND
3	AC
4	+18V
5	D GND
6	SIRCS
7	+8V
8	−8V
9	REC R
10	REC L
11	PB L
12	GND
13	PB R

CNJ001

NO	SIGNAL
1	R CH
2	GND
3	L CH
4	
5	+12V
6	+5.4V
7	TIMER
8	SIRCS
9	VF
10	VF
11	−24V


7
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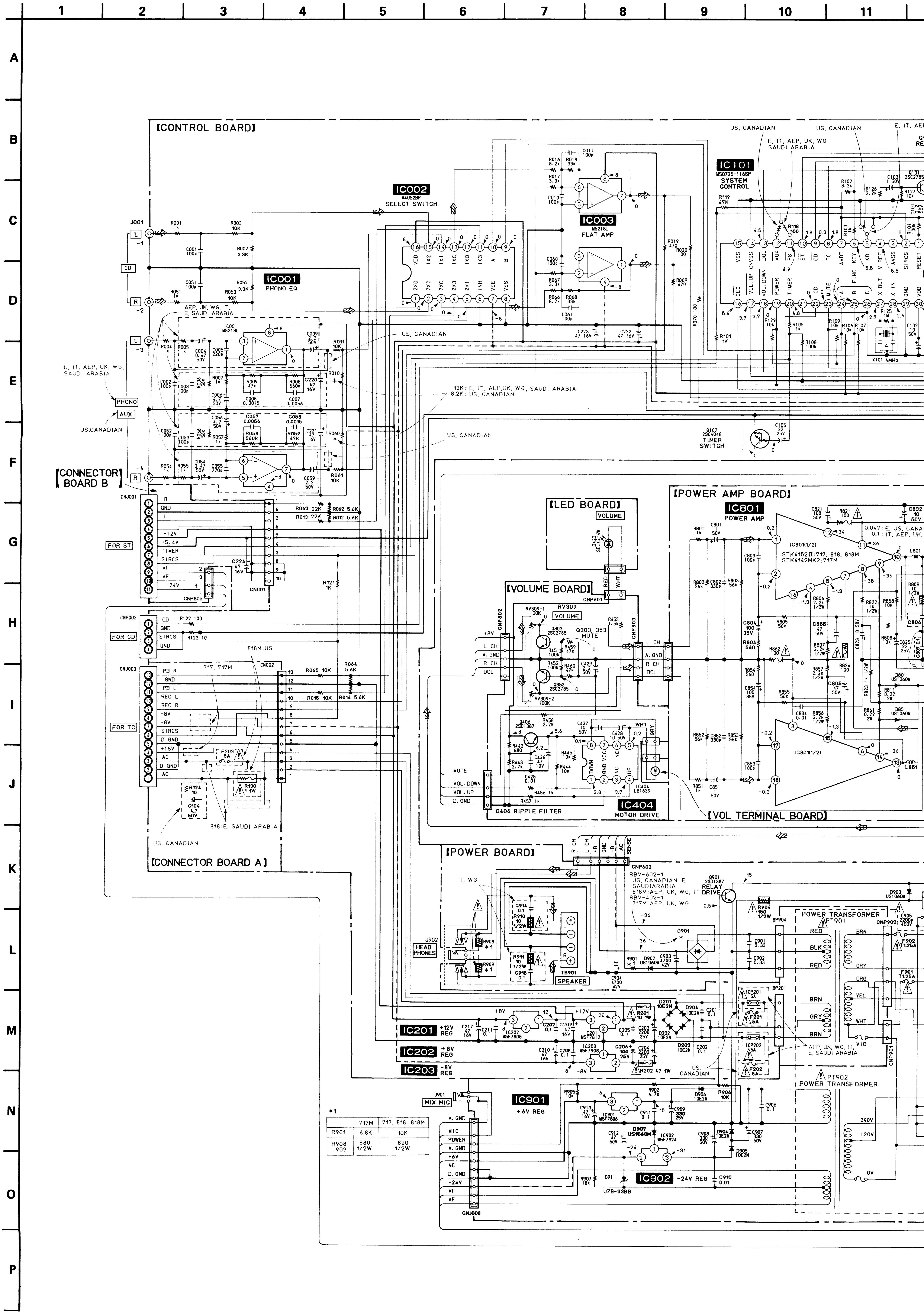
【PANEL BOARD】
【POWER AMP BOARD】
【POWER BOARD】
717/818
SAT
AEP, UK, WG, IT, E, SAUDI
PHONO
AUX
CANADIAN
TUNER
CD
TAPE
EQUALIZATION
POWER
STANDBY
BALANCE
DBFB
DBFB LEVEL
MIC LEVEL
717M/818M
IC301
IC302
IC303
IC351
IC401
IC402
IC403
FL401
CP401
CP402
CP401, 402
RV305
RV304
RV303
RV302
RV301
12KHz
4KHz
1KHz
400Hz
100Hz
GRAPHIC EQUALIZER
RV301 - 305
MIC
A GND
POWER
+6V
D GND
-24V
VF
RED
WHT
BLU
YEL
BLK
BRN
GRY
ORG
VIO
PT901
POWER TRANSFORMER
E, SAUDI
IC801
RY801
Q801
US, CANADIAN, E, SAUDI
J001
CD
AEP,UK,WG, IT,E,SAUDI
US,CANADIAN
CNP002
FOR CD
CD
GND
SIRCS
GND
IC001
IC002
CN001
CN002
AEP, UK, WG, IT, E, SAUDI
BLK
US, CANADIAN
TB901
SPEAKER
L
R
WG, IT
BP901
AC IN
AEP, UK, WG, IT, E, SAUDI
CNP602
D902
D903
RY901
D901
BP904
IC901
IC902
D905
D906
D907
D911
J901
MIX MIC
J902
HEADPHONES
US, CANADIAN
S901
F901
F902
CNP901
CNP902
US, CANADIAN, AEP, UK, WG, IT
US, CANADIAN, UK, E, SAUDI
AEP, WG, IT
PT902
POWER TRANSFORMER
S901
VOLTAGE SELECTOR
220V ← 240V → 120V
E, SAUDI
11

3-4. SCHEMATIC DIAGRAM • See page 4 for IC Block Diagrams. • See page 5 for notes.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A
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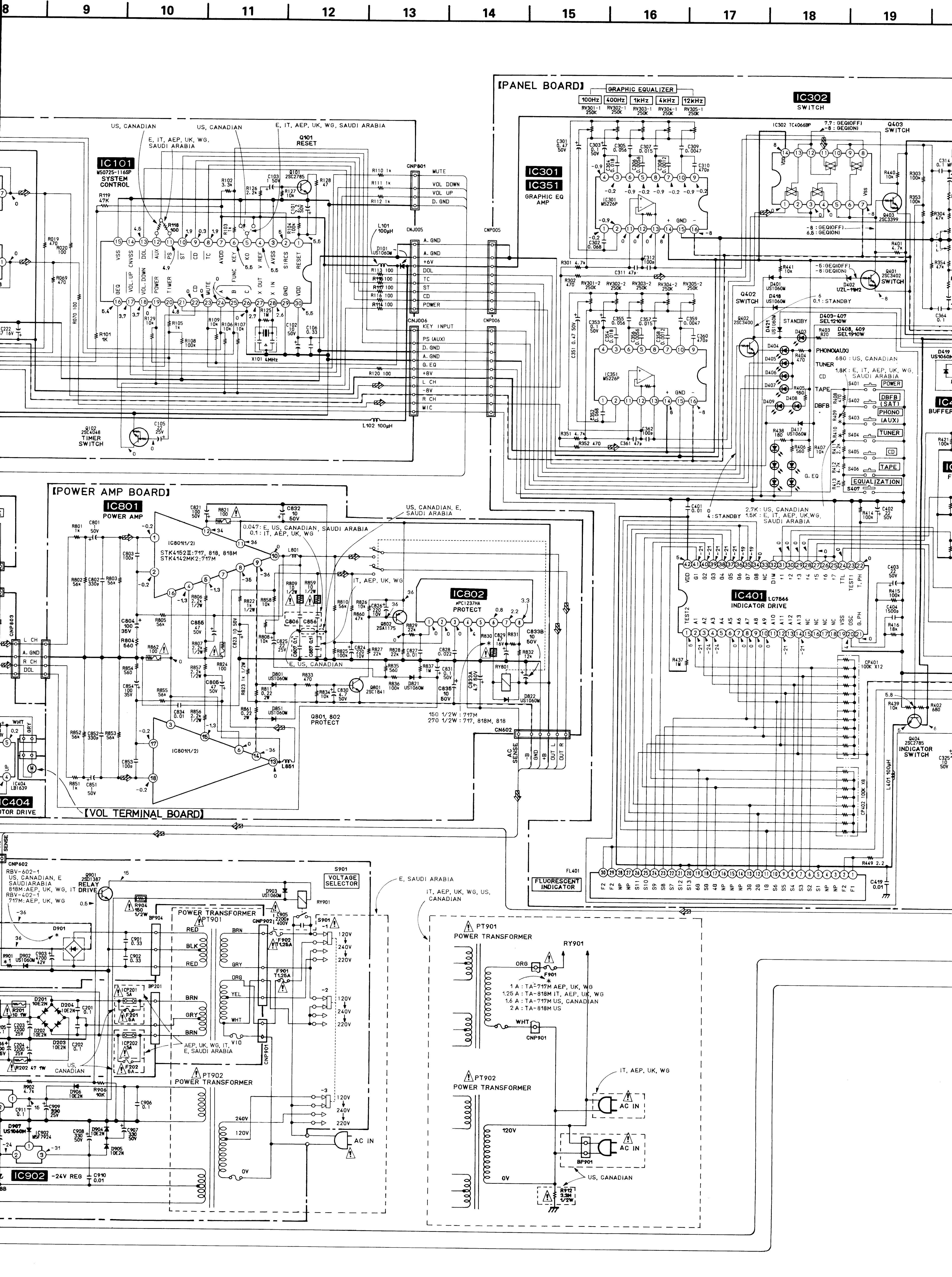
I
J
K
L
M
N
O
P
【CONTROL BOARD】
IC002
M4052BP
SELECT SWITCH
IC003
M5218L
FLAT AMP
IC001
PHONO EQ
IC101
M50725-116SP
SYSTEM CONTROL
US, CANADIAN
E, IT, AEP, UK, WG, SAUDI ARABIA
J001
CD
PHONO
AUX
US,CANADIAN
AEP, UK, WG, IT, E, SAUDI ARABIA
12K: E, IT, AEP,UK, WG, SAUDI ARABIA
8.2K: US, CANADIAN
Q102
2SC4048
TIMER SWITCH
X101 4MHz
【CONNECTOR BOARD B】
CNJ001
FOR ST
CN001
CNP805
CNP002
FOR CD
CNJ003
FOR TC
CN002
717, 717M
818M:US
818:E, SAUDI ARABIA
US, CANADIAN
【CONNECTOR BOARD A】
【LED BOARD】
VOLUME
【VOLUME BOARD】
RV309
VOLUME
Q303, 353
MUTE
CNP601
CNP802
CNP803
Q406 RIPPLE FILTER
IC404
LB1639
MOTOR DRIVE
【POWER AMP BOARD】
IC801
POWER AMP
STK4152Ⅱ:717, 818, 818M
STK4142MK2:717M
0.047: E, US, CANA
0.1: IT, AEP, UK,
【VOL TERMINAL BOARD】
【POWER BOARD】
CNP602
RBV-602-1
US, CANADIAN, E
SAUDIARABIA
818M:AEP, UK, WG, IT
RBV-402-1
717M:AEP, UK, WG
Q901
2SD1387
RELAY DRIVE
IT, WG
J902
HEAD PHONES
TB901
SPEAKER
POWER TRANSFORMER
PT901
IC201 +12V REG
IC202 +8V REG
IC203 -8V REG
AEP, UK, WG, IT, E, SAUDI ARABIA
US, CANADIAN
PT902
POWER TRANSFORMER
J901
MIX MIC
IC901
+6V REG
IC902 -24V REG
CNJ008
UZB-33BB
240V
120V
0V

*1

	717M	717, 818, 818M
R901	6.8K	10K
R908 909	680 1/2W	820 1/2W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11
12
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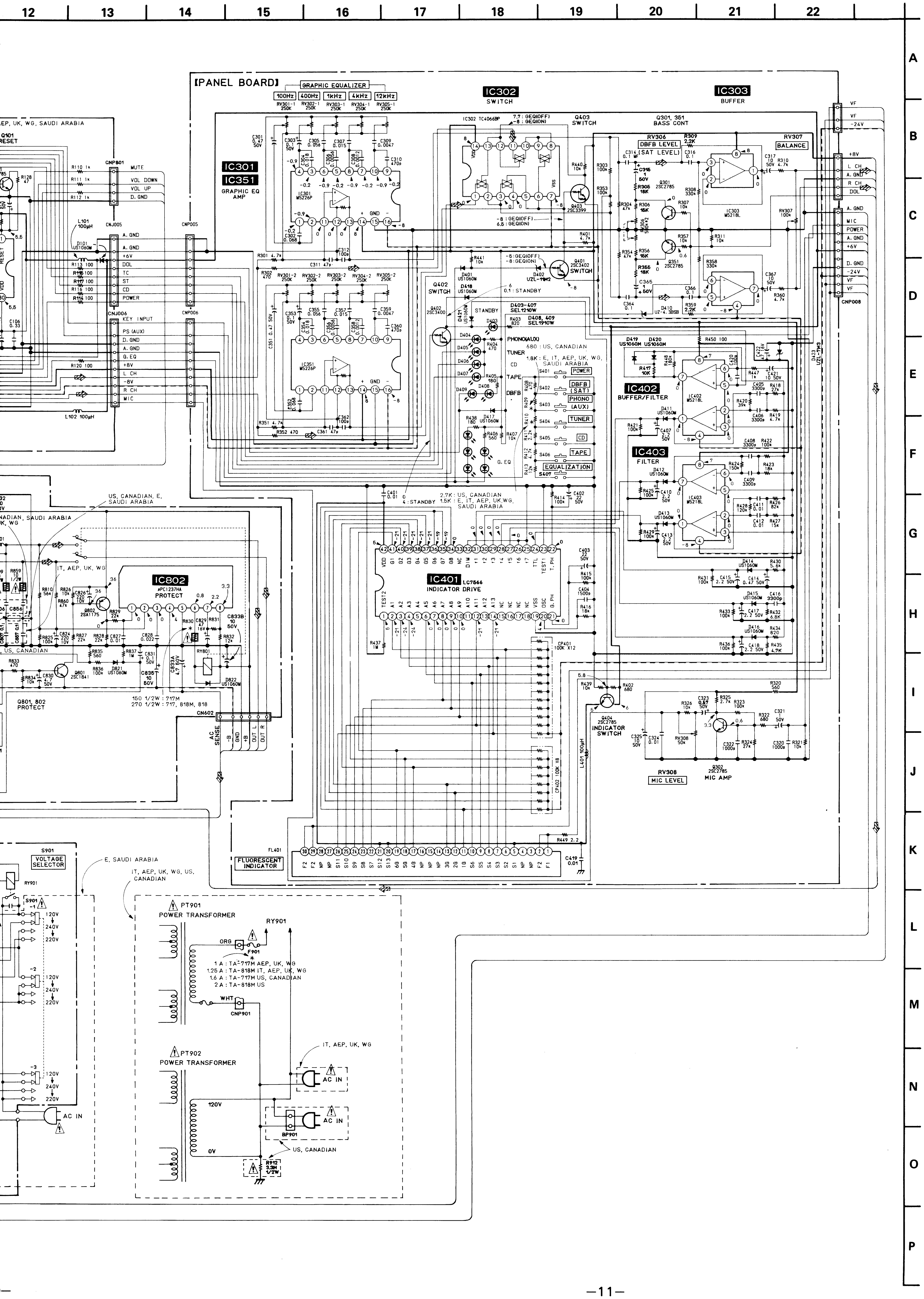
14
15
16
17
18
19
[PANEL BOARD]
GRAPHIC EQUALIZER
100Hz
400Hz
1kHz
4kHz
12kHz
IC302
SWITCH
Q403
SWITCH
IC301
IC351
GRAPHIC EQ AMP
IC101
M50725-116SP
SYSTEM CONTROL
Q101
RESET
US, CANADIAN
E, IT, AEP, UK, WG, SAUDI ARABIA
CNP801
MUTE
VOL DOWN
VOL UP
D. GND
CNJ005
CNP005
A. GND
+6V
DOL
TC
ST
CD
POWER
CNJ006
CNP006
KEY INPUT
PS (AUX)
D. GND
A. GND
G. EQ
+8V
L CH
-8V
R CH
MIC
X101 4MHz
Q102
2SC4048
TIMER SWITCH
Q402
SWITCH
Q401
2SC3402
SWITCH
D402
UZL-11M2
STANDBY
D403-407
SEL1210W
D408, 409
SEL1910W
PHONO(AUX)
TUNER
CD
TAPE
DBFB
680 : US, CANADIAN
1.8K : E, IT, AEP, UK, WG, SAUDI ARABIA
POWER
DBFB (SAT)
PHONO (AUX)
TUNER
CD
TAPE
EQUALIZATION
G. EQ
BUFFER
2.7K : US, CANADIAN
1.5K : E, IT, AEP, UK, WG, SAUDI ARABIA
4 : STANDBY
IC401 LC7566
INDICATOR DRIVE
Q404
2SC2785
INDICATOR SWITCH
CP401 100K X12
CP402 100K X8
FL401
FLUORESCENT INDICATOR
[POWER AMP BOARD]
IC801
POWER AMP
IC801(1/2)
STK4152II : 717, 818, 818M
STK4142MK2 : 717M
0.047 : E, US, CANADIAN, SAUDI ARABIA
0.1 : IT, AEP, UK, WG
US, CANADIAN, E, SAUDI ARABIA
IT, AEP, UK, WG
IC802
μPC1237HA
PROTECT
Q802
2SA1175
Q801
2SC1841
Q801, 802
PROTECT
RY801
150 1/2W : 717M
270 1/2W : 717, 818M, 818
CN602
AC SENSE
-B
GND
+B
OUT L
OUT R
CNP803
L CH
A. GND
R CH
DOL
IC404
LB1639
IC404
MOTOR DRIVE
[VOL TERMINAL BOARD]
CNP602
RBV-602-1
US, CANADIAN, E SAUDIARABIA 818M:AEP, UK, WG, IT
RBV-402-1
717M: AEP, UK, WG
Q901
2SD1387
RELAY DRIVE
S901
VOLTAGE SELECTOR
E, SAUDI ARABIA
RY901
POWER TRANSFORMER
PT901
CNP902
F902 T1.25A
F901 T1.25A
120V
240V
220V
AEP, UK, WG, IT, E, SAUDI ARABIA
US, CANADIAN
PT902
POWER TRANSFORMER
AC IN
CNP901
IC902
MSF7924
IC902
-24V REG
IT, AEP, UK, WG, US, CANADIAN
PT901
POWER TRANSFORMER
RY901
F901
1 A : TA-717M AEP, UK, WG
1.25 A : TA-818M IT, AEP, UK, WG
1.6 A : TA-717M US, CANADIAN
2 A : TA-818M US
CNP901
PT902
POWER TRANSFORMER
IT, AEP, UK, WG
AC IN
AC IN
BP901
US, CANADIAN
R912 3.3M 1/2W
120V
0V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21
22
A
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C
D
E
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G
H
I
J
K
L
M
N
O
P
【PANEL BOARD】
GRAPHIC EQUALIZER
100Hz
400Hz
1kHz
4kHz
12kHz
RV301-1 250K
RV302-1 250K
RV303-1 250K
RV304-1 250K
RV305-1 250K
IC301
IC351
GRAPHIC EQ AMP
IC301 M5226P
IC351 M5226P
IC302
SWITCH
IC302 TC4066BP
7.7 : GEQ(OFF)
-8 : GEQ(ON)
Q403
SWITCH
Q403 2SC3399
-8 : GEQ(OFF)
6.6 : GEQ(ON)
IC303
BUFFER
Q301, 351
BASS CONT
RV306
DBFB LEVEL
(SAT LEVEL)
RV307
BALANCE
IC303 M5218L
Q301 2SC2785
Q351 2SC2785
D410 UZ-4.3BSB
Q401 2SC3402
SWITCH
D402 UZL-11M2
-6 : GEQ(OFF)
-8 : GEQ(ON)
Q402
SWITCH
Q402 2SC3400
6
0.1 : STANDBY
STANDBY
D403-407 SEL1210W
D408, 409 SEL1910W
PHONO(AUX)
680 : US, CANADIAN
TUNER
1.8K : E, IT, AEP, UK, WG, SAUDI ARABIA
CD
TAPE
DBFB
S401 POWER
S402 DBFB (SAT)
S403 PHONO (AUX)
S404 TUNER
S405 CD
S406 TAPE
S407 EQUALIZATION
G. EQ
IC402
BUFFER/FILTER
IC402 M5218L
IC403
FILTER
IC403 M5218L
D419 US1060M
D420 US1060M
D423 UZL-7M3
IC401 LC7566
INDICATOR DRIVE
0
4 : STANDBY
2.7K : US, CANADIAN
1.5K : E, IT, AEP, UK, WG, SAUDI ARABIA
CP401 100K X12
CP402 100K X8
Q404 2SC2785
INDICATOR SWITCH
RV308
MIC LEVEL
Q302 2SC2785
MIC AMP
L401 100μH
FL401
FLUORESCENT INDICATOR
CNP008
VF
-24V
+8V
L CH
A. GND
R CH
DOL
MIC
POWER
+6V
D. GND
AEP, UK, WG, SAUDI ARABIA
Q101
RESET
CNP801
MUTE
VOL DOWN
VOL UP
D. GND
CNJ005
L101 100μH
D101 US1060M
A. GND
+6V
DOL
TC
ST
CD
POWER
CNJ006
KEY INPUT
PS (AUX)
G. EQ
+8V
-8V
L102 100μH
CNP005
CNP006
US, CANADIAN, E, SAUDI ARABIA
CANADIAN, SAUDI ARABIA
UK, WG
IT, AEP, UK, WG
IC802
μPC1237HA
PROTECT
Q802 2SA1175
Q801 2SC1841
Q801, 802
PROTECT
RY801
D822 US1060M
150 1/2W : 717M
270 1/2W : 717, 818M, 818
CN602
AC SENSE
-B
GND
+B
OUT L
OUT R
US, CANADIAN
S901
VOLTAGE SELECTOR
RY901
S901 -1
-2
-3
120V
240V
220V
AC IN
E, SAUDI ARABIA
IT, AEP, UK, WG, US, CANADIAN
PT901
POWER TRANSFORMER
ORG
F901
1 A : TA-717M AEP, UK, WG
1.25 A : TA-818M IT, AEP, UK, WG
1.6 A : TA-717M US, CANADIAN
2 A : TA-818M US
WHT
CNP901
PT902
POWER TRANSFORMER
IT, AEP, UK, WG
120V
0V
BP901
US, CANADIAN
R912 3.3M 1/2W

SECTION 4
EXPLODED VIEW

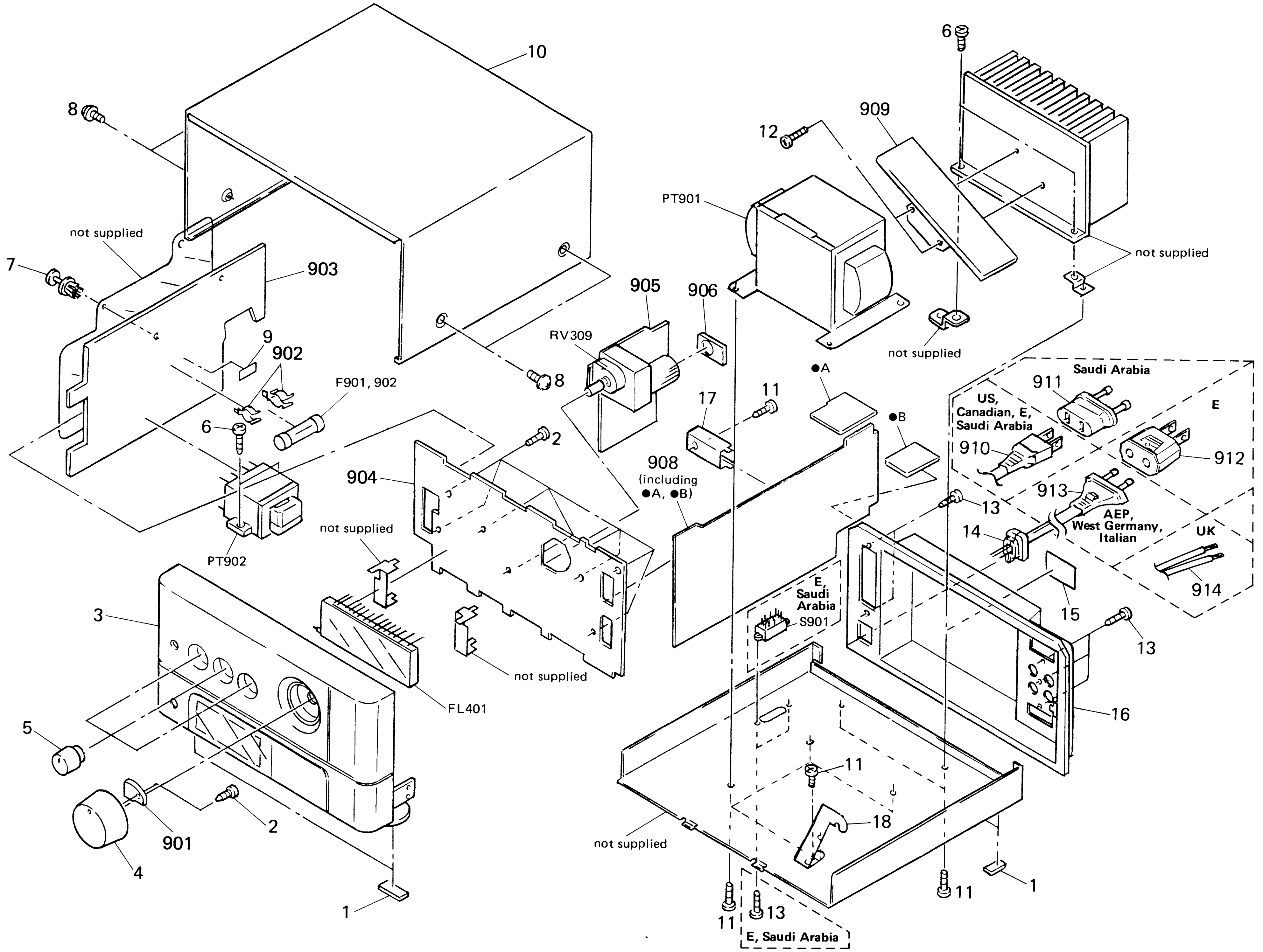
NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts' Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifé.



No.	Part No.	Description	Remarks
1	4-930-336-01	FOOT (FELT)	
2	4-928-635-01	SCREW, +BV (2.6X8) TAPPING	
3	X-4930-301-1	(818M:US)...PANEL ASSY, FRONT	
	X-4930-302-1	(818).......PANEL ASSY, FRONT	
	X-4930-304-1	(717).......PANEL ASSY, FRONT	
	X-4930-305-1	(717M:US,Canadian)....PANEL ASSY, FRONT	
	X-4930-308-1	(818M:AEP,UK,WG,IT)...PANEL ASSY, FRONT	
	X-4930-309-1	(717M:AEP,UK,WG)......PANEL ASSY, FRONT	
4	X-4930-303-1	KNOB ASSY	
5	4-930-323-01	KNOB	
6	7-682-548-04	SCREW +BVTT 3X8 (S)	
7	4-812-134-11	RIVET NYLON, 3.5	
8	3-704-366-01	SCREW (CASE) (M3X8)	
9	*3-701-946-22	(717M:US,Canadian)...LABEL (1.6A 125V), FUSE	
	*3-701-946-23	(818M:US).........LABEL (2A 125V), FUSE	
	*3-701-947-11	(717M:AEP,UK,WG)......LABEL (T1A), FUSE	
10	4-930-355-01	(818M:US)..................CASE	
	4-930-355-21	(717M,818M:AEP,UK,WG,IT)...CASE	
	4-930-355-31	(E,Saudi Arabia)...........CASE	
11	7-682-547-04	SCREW +BVTT 3X6 (S)	
12	7-685-650-79	SCREW +BVTP 3X16 TYPE2 IT-3	
13	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
14	3-703-571-00	(E)..........BUSHING (S) (4516), CORD	
	*3-703-244-00	(EXCEPT for E)...BUSHING (2104), CORD	
15	*4-930-301-01	(717M:US)....LABEL, MODEL NUMBER (U)	
	*4-930-302-01	(717M:AEP)...LABEL, MODEL NUMBER (AE)	
	*4-930-303-01	(717M:WG)....LABEL, MODEL NUMBER (AE4)	
	*4-930-304-01	(717M:UK)....LABEL, MODEL NUMBER (UK)	
	*4-930-305-01	(717)........LABEL, MODEL NUMBER (E2/E3)	
	*4-930-306-01	(717M:Canadian)...LABEL, MODEL NUMBER(C)	
	*4-930-307-01	(818M:US)....LABEL, MODEL NUMBER (U)	
	*4-930-308-01	(818M:IT)....LABEL, MODEL NUMBER (IT)	
	*4-930-309-01	(818M:AEP)...LABEL, MODEL NUMBER (AE)	
	*4-930-310-01	(818M:WG)....LABEL, MODEL NUMBER (AE4)	
	*4-930-311-01	(818M:UK)....LABEL, MODEL NUMBER (UK)	
	*4-930-312-01	(818)......LABEL, MODEL NUMBER (E2/E3)	
16	*4-930-328-01	PANEL, BACK	
17	*3-309-144-21	HEAT SINK	
18	*3-327-845-01	BRACKET	
901	*1-630-660-11	PC BOARD, LED	
902	*1-533-213-31	HOLDER, FUSE	
903	*1-630-662-11	PC BOARD, POWER	
904	*A-4333-306-A	(AEP,UK,E,Saudi Arabia) ...MOUNTED PCB, PANEL	
	*A-4333-312-A	(WG,IT)..........MOUNTED PCB, PANEL	
	*A-4333-317-A	(US,Canadin).....MOUNTED PCB, PANEL	
905	*1-630-663-11	PC BOARD, VOL	
906	*1-630-664-11	PC BOARD, VOL TERMINAL	
908	*A-4333-305-A	(717,717M:AEP,UK)....MOUNTED PCB, CONTROL	
	*A-4333-311-A	(717M:WG)............MOUNTED PCB, CONTROL	
	*A-4333-316-A	(717M:US,Canadian)...MOUNTED PCB, CONTROL	
	*A-4333-326-A	(818M:WG,IT).........MOUNTED PCB, CONTROL	
	*A-4333-363-A	(818,818M:AEP,UK)....MOUNTED PCB, CONTROL	
	*A-4333-389-A	(818M:US)............MOUNTED PCB, CONTROL	
909	⚠.1-630-659-11	PC BOARD, POWER AMP	
910	⚠.1-551-188-XX	(E).............CORD, POWER	
	⚠.1-557-577-11	(US,Canadian)...CORD, POWER	
911	⚠.1-526-565-00	(E)...AC PLUG ADAPTOR	
912	⚠.1-506-401-11	(Saudi Arabia)...ADAPTOR, CONVERSION	
913	⚠.1-555-750-00	(AEP,WG,IT,Saudi Arabia)...CORD, POWER	
914	⚠.1-556-037-00	(UK)...CORD, POWER	
F901	⚠.1-532-285-00	(E,Saudi Arabia,818M:AEP,UK,WG,IT) ...FUSE, TIME-LAG (1.25A)	
F901	⚠.1-532-078-00	(717M:AEP,UK)........FUSE, TIME-LAG (1A)	
F901	⚠.1-532-742-11	(717M:US,Canadian)...FUSE, GLASS TUBE (1.6A)	
F901	⚠.1-532-743-11	(818M:US)...........FUSE, GLASS TUBE(2A)	
F902	⚠.1-532-285-00	(E,Saudi Arabia)...FUSE, TIME-LAG(1.25A)	
FL401	1-519-516-11	INDICATOR TUBE, FLUORESCENT	
PT901	⚠.1-449-561-11	(E,Saudi Arabia).....TRANSFORMER, POWER	
PT901	⚠.1-449-562-11	(717M:UK)............TRANSFORMER, POWER	
PT901	⚠.1-449-563-11	(717M:AEP,UK)........TRANSFORMER, POWER	
PT901	⚠.1-449-564-11	(717M:US,Canadian)...TRANSFORMER, POWER	
PT901	⚠.1-449-568-11	(818M:UK)............TRANSFORMER, POWER	
PT901	⚠.1-449-569-11	(818M:AEP,WG,IT).....TRANSFORMER, POWER	
PT901	⚠.1-449-570-11	(818M:US)............TRANSFORMER, POWER	
PT902	⚠.1-449-565-11	(E,Saudi Arabia)...TRANSFORMER, POWER	
PT902	⚠.1-449-566-11	(AEP,UK,WG,IT).....TRANSFORMER, POWER	
PT902	⚠.1-449-567-11	(US,Canadian)......TRANSFORMER, POWER	

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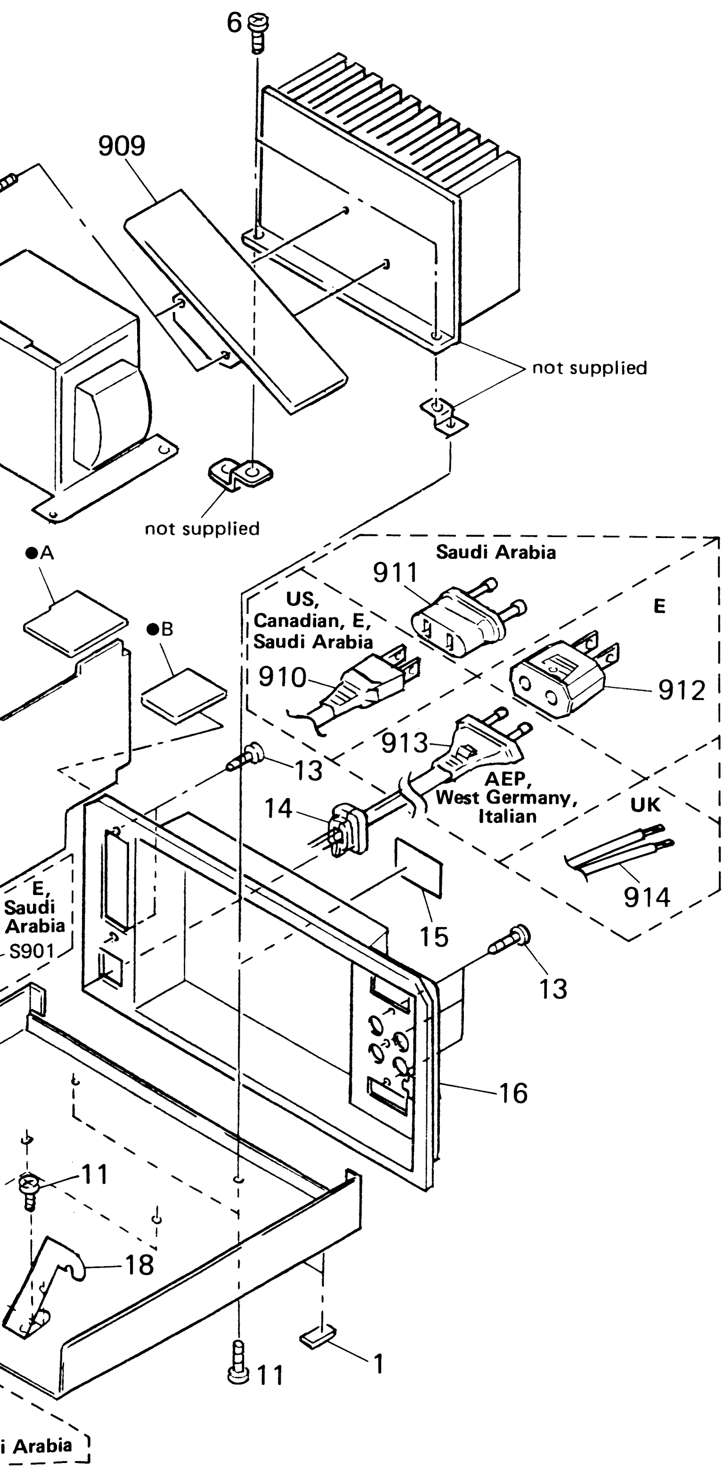
No.	Part No.	Description	Remarks
1	4-930-336-01	FOOT (FELT)	
2	4-928-635-01	SCREW, +BV (2.6X8) TAPPING	
3	X-4930-301-1	(818M:US)...PANEL ASSY, FRONT	
	X-4930-302-1	(818).......PANEL ASSY, FRONT	
	X-4930-304-1	(717).......PANEL ASSY, FRONT	
	X-4930-305-1	(717M:US,Canadian)....PANEL ASSY, FRONT	
	X-4930-308-1	(818M:AEP,UK,WG,IT)...PANEL ASSY, FRONT	
	X-4930-309-1	(717M:AEP,UK,WG)......PANEL ASSY, FRONT	
4	X-4930-303-1	KNOB ASSY	
5	4-930-323-01	KNOB	
6	7-682-548-04	SCREW +BVTT 3X8 (S)	
7	4-812-134-11	RIVET NYLON, 3.5	
8	3-704-366-01	SCREW (CASE) (M3X8)	
9	*3-701-946-22	(717M:US,Canadian)...LABEL (1.6A 125V), FUSE	
	*3-701-946-23	(818M:US).........LABEL (2A 125V), FUSE	
	*3-701-947-11	(717M:AEP,UK,WG)......LABEL (T1A), FUSE	
10	4-930-355-01	(818M:US)..................CASE	
	4-930-355-21	(717M,818M:AEP,UK,WG,IT)...CASE	
	4-930-355-31	(E,Saudi Arabia)...........CASE	
11	7-682-547-04	SCREW +BVTT 3X6 (S)	
12	7-685-650-79	SCREW +BVTP 3X16 TYPE2 IT-3	
13	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
14	3-703-571-00	(E)..........BUSHING (S) (4516), CORD	
	*3-703-244-00	(EXCEPT for E)...BUSHING (2104), CORD	
15	*4-930-301-01	(717M:US)....LABEL, MODEL NUMBER (U)	
	*4-930-302-01	(717M:AEP)...LABEL, MODEL NUMBER (AE)	
	*4-930-303-01	(717M:WG)....LABEL, MODEL NUMBER (AE4)	
	*4-930-304-01	(717M:UK)....LABEL, MODEL NUMBER (UK)	
	*4-930-305-01	(717)........LABEL, MODEL NUMBER (E2/E3)	
	*4-930-306-01	(717M:Canadian)...LABEL, MODEL NUMBER(C)	
	*4-930-307-01	(818M:US)....LABEL, MODEL NUMBER (U)	
	*4-930-308-01	(818M:IT)....LABEL, MODEL NUMBER (IT)	
	*4-930-309-01	(818M:AEP)...LABEL, MODEL NUMBER (AE)	
	*4-930-310-01	(818M:WG)....LABEL, MODEL NUMBER (AE4)	
	*4-930-311-01	(818M:UK)....LABEL, MODEL NUMBER (UK)	
	*4-930-312-01	(818)......LABEL, MODEL NUMBER (E2/E3)	
16	*4-930-328-01	PANEL, BACK	
17	*3-309-144-21	HEAT SINK	
18	*3-327-845-01	BRACKET	
901	*1-630-660-11	PC BOARD, LED	
902	*1-533-213-31	HOLDER, FUSE	
903	*1-630-662-11	PC BOARD, POWER	
904	*A-4333-306-A	(AEP,UK,E,Saudi Arabia) ...MOUNTED PCB, PANEL	
	*A-4333-312-A	(WG,IT)..........MOUNTED PCB, PANEL	
	*A-4333-317-A	(US,Canadin).....MOUNTED PCB, PANEL	
905	*1-630-663-11	PC BOARD, VOL	
906	*1-630-664-11	PC BOARD, VOL TERMINAL	
908	*A-4333-305-A	(717,717M:AEP,UK)....MOUNTED PCB, CONTROL	
	*A-4333-311-A	(717M:WG)............MOUNTED PCB, CONTROL	
	*A-4333-316-A	(717M:US,Canadian)...MOUNTED PCB, CONTROL	
	*A-4333-326-A	(818M:WG,IT).........MOUNTED PCB, CONTROL	
	*A-4333-363-A	(818,818M:AEP,UK)....MOUNTED PCB, CONTROL	
	*A-4333-389-A	(818M:US)............MOUNTED PCB, CONTROL	
909	⚠.1-630-659-11	PC BOARD, POWER AMP	
910	⚠.1-551-188-XX	(E).............CORD, POWER	
	⚠.1-557-577-11	(US,Canadian)...CORD, POWER	
911	⚠.1-526-565-00	(E)...AC PLUG ADAPTOR	
912	⚠.1-506-401-11	(Saudi Arabia)...ADAPTOR, CONVERSION	
913	⚠.1-555-750-00	(AEP,WG,IT,Saudi Arabia)...CORD, POWER	
914	⚠.1-556-037-00	(UK)...CORD, POWER	
F901	⚠.1-532-285-00	(E,Saudi Arabia,818M:AEP,UK,WG,IT) ...FUSE, TIME-LAG (1.25A)	
F901	⚠.1-532-078-00	(717M:AEP,UK)........FUSE, TIME-LAG (1A)	
F901	⚠.1-532-742-11	(717M:US,Canadian)...FUSE, GLASS TUBE (1.6A)	
F901	⚠.1-532-743-11	(818M:US)...........FUSE, GLASS TUBE(2A)	
F902	⚠.1-532-285-00	(E,Saudi Arabia)...FUSE, TIME-LAG(1.25A)	
FL401	1-519-516-11	INDICATOR TUBE, FLUORESCENT	
PT901	⚠.1-449-561-11	(E,Saudi Arabia).....TRANSFORMER, POWER	
PT901	⚠.1-449-562-11	(717M:UK)............TRANSFORMER, POWER	
PT901	⚠.1-449-563-11	(717M:AEP,UK)........TRANSFORMER, POWER	
PT901	⚠.1-449-564-11	(717M:US,Canadian)...TRANSFORMER, POWER	
PT901	⚠.1-449-568-11	(818M:UK)............TRANSFORMER, POWER	
PT901	⚠.1-449-569-11	(818M:AEP,WG,IT).....TRANSFORMER, POWER	
PT901	⚠.1-449-570-11	(818M:US)............TRANSFORMER, POWER	
PT902	⚠.1-449-565-11	(E,Saudi Arabia)...TRANSFORMER, POWER	
PT902	⚠.1-449-566-11	(AEP,UK,WG,IT).....TRANSFORMER, POWER	
PT902	⚠.1-449-567-11	(US,Canadian)......TRANSFORMER, POWER	



SECTION 5
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description
901	*1-630-660-11	PC BOARD, LED
902	*1-533-213-31	HOLDER, FUSE
903	*1-630-662-11	PC BOARD, POWER
904	*A-4333-306-A	(AEP,UK,E,Saudi Arabia) ...MOUNTED PCB, PANEL
	*A-4333-312-A	(WG,IT).........MOUNTED PCB, PANEL
	*A-4333-317-A	(US,Canadin)....MOUNTED PCB, PANEL
905	*1-630-663-11	PC BOARD, VOL
906	*1-630-664-11	PC BOARD, VOL TERMINAL
908	*A-4333-305-A	(717,717M:AEP,UK) ...MOUNTED PCB, CONTROL
	*A-4333-311-A	(717M:WG).......MOUNTED PCB, CONTROL
	*A-4333-316-A	(717M:US,Canadian) ...MOUNTED PCB, CONTROL
	*A-4333-326-A	(818M:WG,IT)....MOUNTED PCB, CONTROL
	*A-4333-363-A	(818,818M:AEP,UK) ...MOUNTED PCB, CONTROL
	*A-4333-389-A	(818M:US).......MOUNTED PCB, CONTROL
909	⚠.1-630-659-11	PC BOARD, POWER AMP
910	⚠.1-551-188-XX	(E).............CORD, POWER
	⚠.1-557-577-11	(US,Canadian)...CORD, POWER
911	⚠.1-526-565-00	(E)....AC PLUG ADAPTOR
912	⚠.1-506-401-11	(Saudi Arabia)...ADAPTOR, CONVERSION
913	⚠.1-555-750-00	(AEP,WG,IT,Saudi Arabia)...CORD, POWER
914	⚠.1-556-037-00	(UK)...CORD, POWER
BP201	*1-508-830-12	H TYPE BASE POST
BP901	*1-535-139-12	(US,Canadian)..BASE POST 22MM(10MM PICH)
BP904	*1-508-830-12	H TYPE BASE POST
C001	1-162-282-31	CERAMIC 100PF 10% 50V
C002	1-162-282-31	CERAMIC 100PF 10% 50V
C003	1-162-282-31	(AEP,UK,WG,IT,E,Saudi Arabia) ...CERAMIC 100PF 10% 50V
C004	1-124-902-00	(AEP,UK,WG,IT,E,Saudi Arabia) ...ELECT 0.47MF 20% 50V
C005	1-162-286-31	(AEP,UK,WG,IT,E,Saudi Arabia) ...CERAMIC 220PF 10% 50V
C006	1-124-927-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...ELECT 4.7MF 20% 50V
C007	1-130-480-00	(AEP,UK,WG,IT,E,Saudi Arabia) ...MYLAR 0.0056MF 5% 50V
C008	1-130-473-00	(AEP,UK,WG,IT,E,Saudi Arabia) ...MYLAR 0.0015MF 5% 50V
C009	1-124-925-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...ELECT 2.2MF 20% 50V
C010	1-162-282-31	CERAMIC 100PF 10% 50V
C011	1-162-282-31	CERAMIC 100PF 10% 50V
C051	1-162-282-31	CERAMIC 100PF 10% 50V
C052	1-162-282-31	CERAMIC 100PF 10% 50V
C053	1-162-282-31	(AEP,UK,WG,IT,E,Saudi Arabia) ...CERAMIC 100PF 10% 50V
C054	1-124-902-00	(AEP,UK,WG,IT,E,Saudi Arabia) ...ELECT 0.47MF 20% 50V
C055	1-162-286-31	(AEP,UK,WG,IT,E,Saudi Arabia) ...CERAMIC 220PF 10% 50V
C056	1-124-927-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...ELECT 4.7MF 20% 50V
C057	1-130-480-00	(AEP,UK,WG,IT,E,Saudi Arabia) ...MYLAR 0.0056MF 5% 50V
C058	1-130-473-00	(AEP,UK,WG,IT,E,Saudi Arabia) ...MYLAR 0.0015MF 5% 50V
C059	1-124-925-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...ELECT 2.2MF 20% 50V
C060	1-162-282-31	CERAMIC 100PF 10% 50V
C061	1-162-282-31	CERAMIC 100PF 10% 50V
C101	1-124-925-11	ELECT 2.2MF 20% 50V
C102	1-123-875-11	ELECT 10MF 20% 50V
C103	1-124-499-11	ELECT 1MF 20% 50V
C104	1-124-768-11	(US,Canadian)...ELECT 4.7MF 20% 50V
C105	1-126-233-11	ELECT 22MF 20% 25V
C106	1-136-171-00	FILM 0.33MF 5% 50V
C201	1-136-165-00	FILM 0.1MF 5% 50V
C202	1-136-165-00	FILM 0.1MF 5% 50V
C203	1-124-563-11	ELECT 2200MF 20% 25V
C204	1-124-563-11	ELECT 2200MF 20% 25V
C205	1-136-165-00	FILM 0.1MF 5% 50V
C206	1-124-478-11	ELECT 100MF 20% 25V
C207	1-136-165-00	FILM 0.1MF 5% 50V
C208	1-136-165-00	FILM 0.1MF 5% 50V
C209	1-124-477-11	ELECT 47MF 20% 16V
C210	1-124-477-11	ELECT 47MF 20% 16V
C211	1-136-165-00	FILM 0.1MF 5% 50V
C212	1-124-477-11	ELECT 47MF 20% 16V
C220	1-124-477-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...ELECT 47MF 20% 16V
C221	1-124-477-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...ELECT 47MF 20% 16V
C222	1-124-477-11	ELECT 47MF 20% 16V
C223	1-124-477-11	ELECT 47MF 20% 16V
C224	1-124-477-11	ELECT 47MF 20% 16V
C301	1-124-902-00	ELECT 0.47MF 20% 50V
C302	1-136-163-00	FILM 0.068MF 5% 50V
C303	1-124-463-00	ELECT 0.1MF 20% 50V
C304	1-136-156-00	FILM 0.018MF 5% 50V
C305	1-136-162-00	FILM 0.056MF 5% 50V
C306	1-130-480-00	MYLAR 0.0056MF 5% 50V

Ref.No.	Part No.	Description			
C307	1-136-155-00	FILM	0.015MF	5%	50V
C308	1-130-472-00	MYLAR	0.0012MF	5%	50V
C309	1-130-479-00	MYLAR	0.0047MF	5%	50V
C310	1-130-467-00	MYLAR	470PF	5%	50V
C311	1-162-215-31	CERAMIC	47PF	5%	50V
C312	1-162-282-31	CERAMIC	100PF	10%	50V
C314	1-136-165-00	FILM	0.1MF	5%	50V
C315	1-124-499-11	ELECT	1MF	20%	50V
C316	1-136-165-00	FILM	0.1MF	5%	50V
C317	1-123-875-11	ELECT	10MF	20%	50V
C320	1-162-294-31	CERAMIC	0.001MF	10%	50V
C321	1-124-499-11	ELECT	1MF	20%	50V
C322	1-162-294-31	CERAMIC	0.001MF	10%	50V
C323	1-124-902-00	ELECT	0.47MF	20%	50V
C324	1-161-379-00	CERAMIC	0.01MF	30%	16V
C325	1-123-875-11	ELECT	10MF	20%	50V
C351	1-124-902-00	ELECT	0.47MF	20%	50V
C352	1-136-163-00	FILM	0.068MF	5%	50V
C353	1-124-463-00	ELECT	0.1MF	20%	50V
C354	1-136-156-00	FILM	0.018MF	5%	50V
C355	1-136-162-00	FILM	0.056MF	5%	50V
C356	1-130-480-00	MYLAR	0.0056MF	5%	50V
C357	1-136-155-00	FILM	0.015MF	5%	50V
C358	1-130-472-00	MYLAR	0.0012MF	5%	50V
C359	1-130-479-00	MYLAR	0.0047MF	5%	50V
C360	1-130-467-00	MYLAR	470PF	5%	50V
C361	1-162-215-31	CERAMIC	47PF	5%	50V
C362	1-162-282-31	CERAMIC	100PF	10%	50V
C364	1-136-165-00	FILM	0.1MF	5%	50V
C365	1-124-499-11	ELECT	1MF	20%	50V
C366	1-136-165-00	FILM	0.1MF	5%	50V
C367	1-123-875-11	ELECT	10MF	20%	50V
C401	1-161-379-00	CERAMIC	0.01MF	30%	16V
C402	1-126-233-11	ELECT	22MF	20%	50V
C403	1-126-233-11	ELECT	22MF	20%	50V
C404	1-161-374-11	CERAMIC	0.0015MF	20%	16V
C405	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C406	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C407	1-124-257-00	ELECT	2.2MF	20%	50V
C408	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C409	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C410	1-124-257-00	ELECT	2.2MF	20%	50V
C411	1-161-379-00	CERAMIC	0.01MF	30%	16V
C412	1-161-379-00	CERAMIC	0.01MF	30%	16V
C413	1-124-257-00	ELECT	2.2MF	20%	50V
C414	1-124-465-00	ELECT	0.47MF	20%	50V
C415	1-124-257-00	ELECT	2.2MF	20%	50V
C416	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C417	1-124-257-00	ELECT	2.2MF	20%	50V
C418	1-124-257-00	ELECT	2.2MF	20%	50V
C419	1-161-379-00	CERAMIC	0.01MF	30%	16V
C420	1-162-282-31	CERAMIC	100PF	10%	50V
C421	1-123-875-11	ELECT	10MF	20%	50V
C422	1-124-477-11	ELECT	47MF	20%	16V
C425	1-161-379-00	CERAMIC	0.01MF	30%	16V
C426	1-124-477-11	ELECT	47MF	20%	16V
C427	1-123-875-11	ELECT	10MF	20%	50V
C428	1-123-875-11	ELECT	10MF	20%	50V

Ref.No.	Part No.	Description			
C429	1-124-925-11	ELECT	2.2MF	20%	50V
C801	1-124-499-11	ELECT	1MF	20%	50V
C802	1-162-288-31	CERAMIC	330PF	10%	50V
C803	1-162-282-31	CERAMIC	100PF	10%	50V
C804	1-124-122-11	ELECT	100MF	20%	35V
C805	1-124-910-11	ELECT	47MF	20%	50V
C806	1-136-161-00	(US,Canadian,E,Saudi Arabia) ...FILM	0.047MF	5%	50V
C806	1-136-165-00	(AEP,UK,WG,IT)...FILM	0.1MF	5%	50V
C807	1-136-165-00	(AEP,UK,WG,IT)...FILM	0.1MF	5%	50V
C821	1-124-122-11	ELECT	100MF	20%	50V
C823	1-123-875-11	ELECT	10MF	20%	50V
C824	1-126-176-11	ELECT	220MF	20%	10V
C825	1-126-233-11	ELECT	22MF	20%	25V
C826	1-126-176-11	ELECT	220MF	20%	10V
C827	1-161-379-00	CERAMIC	0.01MF	30%	16V
C828	1-161-494-00	CERAMIC	0.022MF		25V
C829	1-124-477-11	ELECT	47MF	20%	16V
C830	1-124-927-11	ELECT	4.7MF	20%	50V
C831	1-124-463-00	ELECT	0.1MF	20%	50V
C832	1-123-875-11	ELECT	10MF	20%	50V
C833A	1-124-927-11	ELECT	4.7MF	20%	50V
C833B	1-123-875-11	ELECT	10MF	20%	50V
C834	1-161-379-00	CERAMIC	0.01MF	30%	16V
C835	1-123-875-11	ELECT	10MF	20%	50V
C851	1-124-499-11	ELECT	1MF	20%	50V
C852	1-162-288-31	CERAMIC	330PF	10%	50V
C853	1-162-282-31	CERAMIC	100PF	10%	50V
C854	1-124-122-11	ELECT	100MF	20%	35V
C855	1-124-910-11	ELECT	47MF	20%	50V
C856	1-136-161-00	(US,Canadian,E,Saudi Arabia) ...FILM	0.047MF	5%	50V
C856	1-136-165-00	(AEP,UK,WG,IT)...FILM	0.1MF	5%	50V
C857	1-136-165-00	(AEP,UK,WG,IT)...FILM	0.1MF	5%	50V
C901	1-136-171-00	FILM	0.33MF	5%	50V
C902	1-136-171-00	FILM	0.33MF	5%	50V
C903	1-126-224-11	ELECT	4700MF	20%	42V
C904	1-126-224-11	ELECT	4700MF	20%	42V
C905 ⚠	1-161-742-00	CERAMIC	0.0022MF	20%	400V
C906	1-136-165-00	FILM	0.1MF	5%	50V
C907	1-124-912-11	ELECT	330MF	20%	50V
C908	1-124-912-11	ELECT	330MF	20%	50V
C909	1-124-479-11	ELECT	330MF	20%	25V
C910	1-161-379-00	CERAMIC	0.01MF	30%	16V
C911	1-136-165-00	FILM	0.1MF	5%	50V
C912	1-124-910-11	ELECT	47MF	20%	50V
C913	1-124-477-11	ELECT	47MF	20%	16V
C914	1-136-165-00	(WG,IT)...FILM	0.1MF	5%	50V
C915	1-136-165-00	(WG,IT)...FILM	0.1MF	5%	50V
CN001	1-564-610-41	CONNECTOR, BOARD TO BOARD 10P			
CN002	1-506-979-31	CONNECTOR, BOARD TO BOARD 13P			
CNJ001*	1-566-858-11	SOCKET, CONNECTOR 11P (FOR ST)			
CNJ003*	1-565-291-11	SOCKET, CONNECTOR 13P (FOR TC)			
CNJ005*	1-566-925-11	SOCKET, CONNECTOR 8P			
CNJ006*	1-566-926-11	SOCKET, CONNECTOR 10P			
CNJ008*	1-566-926-11	SOCKET, CONNECTOR 10P			

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description
CNP002	1-564-980-11	PIN, CONNECTOR 4P (FOR CD)
CNP005	*1-566-923-11	PLUG, CONNECTOR 8P
CNP006	*1-566-924-11	PLUG, CONNECTOR 10P
CNP008	*1-566-924-11	PLUG, CONNECTOR 10P
CNP601	*1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P
CNP602	*1-564-521-11	PLUG, CONNECTOR 6P
CNP801	*1-564-338-61	PIN, CONNECTOR 4P
CNP802	*1-564-339-00	PIN, CONNECTOR 5P
CNP803	*1-564-338-00	PIN, CONNECTOR 4P
CNP805	*1-564-496-11	PIN, CONNECTOR 3P
CNP901	*1-564-104-00	PIN, CONNECTOR 3P
CNP902	*1-564-915-11	(E,Saudi Arabia)...PIN, CONNECTOR 7P
CP401	1-233-026-11	COMPOSITION CIRCUIT BLOCK (100KX12)
CP402	1-233-140-11	COMPOSITION CIRCUIT BLOCK (100KX8)
D101	8-719-000-26	DIODE US1060M
D201	8-719-200-77	DIODE 10E2N
D202	8-719-200-77	DIODE 10E2N
D203	8-719-200-77	DIODE 10E2N
D204	8-719-200-77	DIODE 10E2N
D401	8-719-000-26	DIODE US1060M
D402	8-719-933-68	DIODE HZS11B-3L
D403	8-719-303-13	DIODE SEL1210W
D404	8-719-303-13	DIODE SEL1210W
D405	8-719-303-13	DIODE SEL1210W
D406	8-719-303-13	DIODE SEL1210W
D407	8-719-303-13	DIODE SEL1210W
D408	8-719-303-59	DIODE SEL1910W
D409	8-719-303-59	DIODE SEL1910W
D410	8-719-010-29	DIODE UZ-4.3BSB
D411	8-719-000-26	DIODE US1060M
D412	8-719-000-26	DIODE US1060M
D413	8-719-000-26	DIODE US1060M
D414	8-719-000-26	DIODE US1060M
D415	8-719-000-26	DIODE US1060M
D416	8-719-000-26	DIODE US1060M
D417	8-719-000-26	DIODE US1060M
D418	8-719-000-26	DIODE US1060M
D419	8-719-000-26	DIODE US1060M
D420	8-719-000-26	DIODE US1060M
D421	8-719-000-26	DIODE US1060M
D422	8-719-303-33	DIODE SEL4214W
D423	8-719-000-90	DIODE UZL-7M3
D801	8-719-000-26	DIODE US1060M
D821	8-719-000-26	DIODE US1060M
D822	8-719-000-26	DIODE US1060M
D851	8-719-000-26	DIODE US1060M
D901	8-719-302-38	(US,Canadian,E,Saudi Arabia,818M:AEP, UK,WG,IT)...DIODE RBV-602-01
D901	8-719-302-36	(717M:AEP,UK,WG)...DIODE RBV-402-01
D902	8-719-000-26	DIODE US1060M
D903	8-719-000-26	DIODE US1060M
D904	8-719-200-77	DIODE 10E2N
D905	8-719-200-77	DIODE 10E2N
D906	8-719-200-77	DIODE 10E2N
D907	8-719-000-26	DIODE US1060M
D911	8-719-014-23	DIODE UZP-3.3BB

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description
F201	⚠.1-532-783-21	(US,Canadian)...FUSE, MICRO (SECONDARY)5A
F202	⚠.1-532-783-21	(US,Canadian)...FUSE, MICRO (SECONDARY)5A
F203	⚠.1-532-780-21	(818M:US)...FUSE, MICRO(SECONDARY)5A
F901	⚠.1-532-285-00	(E,Saudi Arabia,818M:AEP,UK,WG,IT) ...FUSE, TIME-LAG (1.25A)
F901	⚠.1-532-078-00	(717M:AEP,UK,WG)...FUSE, TIME-LAG (1A)
F901	⚠.1-532-742-11	(717M:US,Canadian) ...FUSE, GLASS TUBE (1.6A)
F901	⚠.1-532-743-11	(818M:US)......FUSE, GLASS TUBE (2A)
F902	⚠.1-532-285-00	(E,Saudi Arabia) ...FUSE, TIME-LAG (1.25A)
FL401	1-519-516-11	INDICATOR TUBE, FLUORESCENT
IC001	8-759-600-02	(AEP,UK,WG,IT,E,Saudi Arabia) ...IC M5218L
IC002	8-759-240-52	IC TC4052BP
IC003	8-759-600-02	IC M5218L
IC101	8-759-632-01	IC M50725-116SP
IC201	8-759-604-33	IC M5F7812
IC202	8-759-604-30	IC M5F7808
IC203	8-759-604-30	IC M5F7908
IC301	8-759-602-04	IC M5226P
IC302	8-759-601-43	IC M4066BP
IC303	8-759-600-02	IC M5218L
IC351	8-759-602-04	IC M5226P
IC401	8-759-820-07	IC LC7566
IC402	8-759-600-02	IC M5218L
IC403	8-759-600-02	IC M5218L
IC404	8-759-820-62	IC LB1639
IC801	8-749-900-96	(717M)..........IC STK4142MK2
IC801	8-749-941-52	(717,818,818M)...IC STK4152II
IC802	8-759-111-68	IC UPC1237HA
IC901	8-759-604-84	IC M5F7806
IC902	8-759-604-93	IC M5F7924
⚠ICP201	.1-532-846-21	(AEP,UK,WG,IT,E,Saudi Arabia)..LINK, IC
⚠ICP202	.1-532-846-21	(AEP,UK,WG,IT,E,Saudi Arabia)..LINK, IC
J001	1-565-258-11	JACK, PIN 4P (CD/PHONO or AUX)
J901	1-562-981-21	JACK (MIX MIC)
J902	1-562-837-11	JACK (HEADPHONES)
L101	1-410-521-11	INDUCTOR 100UH
L102	1-410-521-11	INDUCTOR 100UH
L401	1-410-521-11	INDUCTOR 100UH
L801	*1-420-872-00	COIL, AIR CORE
L851	*1-420-872-00	COIL, AIR CORE
PT901	⚠.1-449-561-11	(E,Saudi Arabia)....TRANSFORMER, POWER
PT901	⚠.1-449-562-11	(717M:UK)...........TRANSFORMER, POWER
PT901	⚠.1-449-563-11	(717M:AEP,UK).......TRANSFORMER, POWER
PT901	⚠.1-449-564-11	(717M:US,Canadian)..TRANSFORMER, POWER
PT901	⚠.1-449-568-11	(818M:UK)...........TRANSFORMER, POWER
PT901	⚠.1-449-569-11	(818M:AEP,WG,IT)....TRANSFORMER, POWER
PT901	⚠.1-449-570-11	(818M:US)...........TRANSFORMER, POWER
PT902	⚠.1-449-565-11	(E,Saudi Arabia)...TRANSFORMER, POWER
PT902	⚠.1-449-566-11	(AEP,UK,WG,IT).....TRANSFORMER, POWER
PT902	⚠.1-449-567-11	(US,Canadian)......TRANSFORMER, POWER
Q101	8-729-119-78	TRANSISTOR 2SC2785
Q102	8-729-806-30	TRANSISTOR 2SC4048
Q301	8-729-119-78	TRANSISTOR 2SC2785

Ref.No.	Part No.	Description
Q302	8-729-119-78	TRANSISTOR 2SC2785
Q303	8-729-119-78	TRANSISTOR 2SC2785
Q351	8-729-119-78	TRANSISTOR 2SC2785
Q353	8-729-119-78	TRANSISTOR 2SC2785
Q401	8-729-900-80	TRANSISTOR DTC114ES
Q402	8-729-806-34	TRANSISTOR 2SC3400
Q403	8-729-900-80	TRANSISTOR DTC114ES
Q404	8-729-119-78	TRANSISTOR 2SC2785
Q406	8-729-800-93	TRANSISTOR 2SD1387
Q801	8-729-108-05	TRANSISTOR 2SC1841-PA
Q802	8-729-173-38	TRANSISTOR 2SA733
Q901	8-729-801-93	TRANSISTOR 2SD1387
R001	1-249-417-11	CARBON 1K 5% 1/4W
R002	1-249-423-11	CARBON 3.3K 5% 1/4W
R003	1-249-429-11	CARBON 10K 5% 1/4W
R004	1-249-417-11	CARBON 1K 5% 1/4W
R005	1-249-417-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...CARBON 1K 5% 1/4W
R006	1-249-438-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...CARBON 56K 5% 1/4W
R007	1-249-417-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...CARBON 1K 5% 1/4W
R008	1-247-897-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...CARBON 560K 5% 1/4W
R009	1-249-437-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...CARBON 47K 5% 1/4W
R010	1-249-430-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...CARBON 12K 5% 1/4W
R010	1-249-428-11	(US,Canadian)...CARBON 8.2K 5% 1/4W
R011	1-249-429-11	CARBON 10K 5% 1/4W
R012	1-249-426-11	CARBON 5.6K 5% 1/4W
R013	1-249-429-11	CARBON 10K 5% 1/4W
R014	1-249-426-11	CARBON 5.6K 5% 1/4W
R015	1-249-429-11	CARBON 10K 5% 1/4W
R016	1-249-428-11	CARBON 8.2K 5% 1/4W
R017	1-249-423-11	CARBON 3.3K 5% 1/4W
R018	1-249-435-11	CARBON 33K 5% 1/4W
R019	1-249-413-11	CARBON 470 5% 1/4W
R020	1-249-405-11	CARBON 100 5% 1/4W
R051	1-249-417-11	CARBON 1K 5% 1/4W
R052	1-249-423-11	CARBON 3.3K 5% 1/4W
R053	1-249-429-11	CARBON 10K 5% 1/4W
R054	1-249-417-11	CARBON 1K 5% 1/4W
R055	1-249-417-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...CARBON 1K 5% 1/4W
R056	1-249-438-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...CARBON 56K 1% 1/4W
R057	1-249-417-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...CARBON 1K 5% 1/4W
R058	1-247-897-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...CARBON 560K 5% 1/4W
R059	1-249-437-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...CARBON 47K 5% 1/4W
R060	1-249-430-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...CARBON 12K 5% 1/4W
R060	1-249-428-11	(US,Canadian)..CARBON 8.2K 5% 1/4W
R061	1-249-429-11	CARBON 10K 5% 1/4W
R062	1-249-426-11	CARBON 5.6K 5% 1/4W
R063	1-249-429-11	CARBON 10K 5% 1/4W
R064	1-249-426-11	CARBON 5.6K 5% 1/4W
R065	1-249-429-11	CARBON 10K 5% 1/4W
R066	1-249-428-11	CARBON 8.2K 5% 1/4W

Ref.No.	Part No.	Description
R067	1-249-423-11	CARBON 3.3K 5% 1/4W
R068	1-249-435-11	CARBON 33K 5% 1/4W
R069	1-249-413-11	CARBON 470 5% 1/4W
R070	1-249-405-11	CARBON 100 5% 1/4W
R101	1-249-417-11	CARBON 1K 5% 1/4W
R102	1-249-423-11	CARBON 3.3K 5% 1/4W
R103	1-249-417-11	CARBON 1K 5% 1/4W
R104	1-249-441-11	CARBON 100K 5% 1/4W
R105	1-249-417-11	CARBON 1K 5% 1/4W
R106	1-249-429-11	CARBON 10K 5% 1/4W
R107	1-249-429-11	CARBON 10K 5% 1/4W
R108	1-249-441-11	CARBON 100K 5% 1/4W
R109	1-249-429-11	CARBON 10K 5% 1/4W
R110	1-249-417-11	CARBON 1K 5% 1/4W
R111	1-249-417-11	CARBON 1K 5% 1/4W
R112	1-249-417-11	CARBON 1K 5% 1/4W
R113	1-249-405-11	CARBON 100 5% 1/4W
R114	1-249-405-11	CARBON 100 5% 1/4W
R115	1-249-405-11	CARBON 100 5% 1/4W
R116	1-249-405-11	CARBON 100 5% 1/4W
R117	1-249-405-11	CARBON 100 5% 1/4W
R118	1-249-405-11	CARBON 100 5% 1/4W
R119	1-249-437-11	CARBON 47K 5% 1/4W
R120	1-249-405-11	CARBON 100 5% 1/4W
R121	1-249-417-11	CARBON 1K 5% 1/4W
R122	1-249-405-11	CARBON 100 5% 1/4W
R123	1-249-393-11	CARBON 10 5% 1/4W
R124	1-249-393-11	(US,Canadian)...CARBON 10 5% 1/4W
R125	1-247-903-00	CARBON 1M 5% 1/4W
R126	1-249-421-11	CARBON 2.2K 5% 1/4W
R127	1-249-429-11	CARBON 10K 5% 1/4W
R128	1-249-401-11	CARBON 47 5% 1/4W
R129	1-249-429-11	CARBON 10K 5% 1/4W
R130	⚠.1-217-469-00	(818M:US)...FUSIBLE 1 5% 1W F
R201	⚠.1-217-481-00	FUSIBLE 10 5% 1W F
R202	⚠.1-217-489-00	FUSIBLE 47 5% 1W F
R301	1-249-425-11	CARBON 4.7K 5% 1/4W
R302	1-249-413-11	CARBON 470 5% 1/4W
R303	1-249-441-11	CARBON 100K 5% 1/4W
R304	1-249-437-11	CARBON 47K 5% 1/4W
R305	1-249-432-11	CARBON 18K 5% 1/4W
R306	1-249-431-11	CARBON 15K 5% 1/4W
R307	1-249-429-11	CARBON 10K 5% 1/4W
R308	1-247-891-00	CARBON 330K 5% 1/4W
R309	1-249-421-11	CARBON 2.2K 5% 1/4W
R310	1-249-425-11	CARBON 4.7K 5% 1/4W
R311	1-249-429-11	CARBON 10K 5% 1/4W
R320	1-249-414-11	CARBON 560 5% 1/4W
R321	1-249-429-11	CARBON 10K 5% 1/4W
R322	1-249-415-11	CARBON 680 5% 1/4W
R323	1-249-441-11	CARBON 100K 5% 1/4W
R324	1-249-434-11	CARBON 27K 5% 1/4W
R325	1-249-422-11	CARBON 2.7K 5% 1/4W
R326	1-249-429-11	CARBON 10K 5% 1/4W
R351	1-249-425-11	CARBON 4.7K 5% 1/4W
R352	1-249-413-11	CARBON 470 5% 1/4W
R353	1-249-441-11	CARBON 100K 5% 1/4W

Note:	**Note:**
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Ref.No.	Part No.	Description
R354	1-249-437-11	CARBON 47K 5% 1/4W
R355	1-249-432-11	CARBON 18K 5% 1/4W
R356	1-249-431-11	CARBON 15K 5% 1/4W
R357	1-249-429-11	CARBON 10K 5% 1/4W
R358	1-247-891-00	CARBON 330K 5% 1/4W
R359	1-249-421-11	CARBON 2.2K 5% 1/4W
R360	1-249-425-11	CARBON 4.7K 5% 1/4W
R401	1-249-425-11	CARBON 4.7K 5% 1/4W
R402	1-249-415-11	CARBON 680 5% 1/4W
R403	1-249-416-11	CARBON 820 5% 1/4W
R404	1-249-413-11	CARBON 470 5% 1/4W
R405	1-249-408-11	CARBON 180 5% 1/4W
R406	1-249-414-11	CARBON 560 5% 1/4W
R407	1-249-429-11	CARBON 10K 5% 1/4W
R408	1-249-413-11	CARBON 470 5% 1/4W
R409	1-249-415-11	(US,Canadian)...CARBON 680 5% 1/4W
R409	1-249-420-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...CARBON 1.8K 5% 1/4W
R410	1-249-419-11	(AEP,UK,WG,IT,E,Saudi Arabia) ...CARBON 1.5K 5% 1/4W
R410	1-249-422-11	(US,Canadian)...CARBON 2.7K 5% 1/4W
R411	1-249-421-11	CARBON 2.2K 5% 1/4W
R412	1-249-425-11	CARBON 4.7K 5% 1/4W
R413	1-249-430-11	CARBON 12K 5% 1/4W
R414	1-249-441-11	CARBON 100K 5% 1/4W
R415	1-249-441-11	CARBON 100K 5% 1/4W
R416	1-249-432-11	CARBON 18K 5% 1/4W
R417	1-249-429-11	CARBON 10K 5% 1/4W
R418	1-249-434-11	CARBON 27K 5% 1/4W
R419	1-249-425-11	CARBON 4.7K 5% 1/4W
R420	1-249-436-11	CARBON 39K 5% 1/4W
R421	1-249-441-11	CARBON 100K 5% 1/4W
R422	1-249-441-11	CARBON 100K 5% 1/4W
R423	1-249-432-11	CARBON 18K 5% 1/4W
R424	1-247-883-00	CARBON 150K 5% 1/4W
R425	1-249-441-11	CARBON 100K 5% 1/4W
R426	1-249-440-11	CARBON 82K 5% 1/4W
R427	1-249-431-11	CARBON 15K 5% 1/4W
R428	1-247-881-00	CARBON 120K 5% 1/4W
R429	1-249-441-11	CARBON 100K 5% 1/4W
R430	1-249-426-11	CARBON 5.6K 5% 1/4W
R431	1-249-441-11	CARBON 100K 5% 1/4W
R432	1-249-427-11	CARBON 6.8K 5% 1/4W
R433	1-249-441-11	CARBON 100K 5% 1/4W
R434	1-249-416-11	CARBON 820 5% 1/4W
R435	1-249-425-11	CARBON 4.7K 5% 1/4W
R436	1-249-441-11	CARBON 100K 5% 1/4W
R437	1-247-903-00	CARBON 1M 5% 1/4W
R438	1-249-408-11	CARBON 180 5% 1/4W
R439	1-249-429-11	CARBON 10K 5% 1/4W
R440	1-249-429-11	CARBON 10K 5% 1/4W
R441	1-249-429-11	CARBON 10K 5% 1/4W
R442	1-249-415-11	CARBON 680 5% 1/4W
R443	1-249-422-11	CARBON 2.7K 5% 1/4W
R444	1-249-429-11	CARBON 10K 5% 1/4W
R445	1-249-429-11	CARBON 10K 5% 1/4W
R447	1-249-417-11	CARBON 1K 5% 1/4W

Ref.No.	Part No.	Description
R448	1-247-885-00	CARBON 180K 5% 1/4W
R449	1-249-385-11	CARBON 2.2 5% 1/4W
R450	1-249-405-11	CARBON 100 5% 1/4W
R451	1-249-441-11	CARBON 100K 5% 1/4W
R452	1-249-441-11	CARBON 100K 5% 1/4W
R453	1-249-419-11	CARBON 1.5K 5% 1/4W
R456	1-249-417-11	CARBON 1K 5% 1/4W
R457	1-249-417-11	CARBON 1K 5% 1/4W
R458	1-249-421-11	CARBON 2.2K 5% 1/4W
R459	1-249-437-11	CARBON 47K 5% 1/4W
R460	1-249-437-11	CARBON 47K 5% 1/4W
R801	1-249-417-11	CARBON 1K 5% 1/4W
R802	1-249-438-11	CARBON 56K 5% 1/4W
R803	1-249-438-11	CARBON 56K 5% 1/4W
R804	1-249-414-11	CARBON 560 5% 1/4W
R805	1-249-438-11	CARBON 56K 5% 1/4W
R806	1-247-756-11	CARBON 2.2K 5% 1/2W
R807	1-247-756-11	CARBON 2.2K 5% 1/2W
R808	1-249-429-11	CARBON 10K 5% 1/4W
R809	⚠.1-247-727-11	CARBON 10 5% 1/2W F
R810	1-249-438-11	CARBON 56K 5% 1/4W
R811	1-217-151-00	METAL PLATE 0.22 10% 2W
R821	⚠.1-212-881-11	FUSIBLE 100 5% 1/4W F
R822	1-247-752-11	CARBON 1K 5% 1/2W
R823	1-247-752-11	CARBON 1K 5% 1/2W
R824	⚠.1-212-881-11	FUSIBLE 100 5% 1/4W F
R825	1-249-441-11	CARBON 100K 5% 1/4W
R826	1-249-429-11	CARBON 10K 5% 1/4W
R827	1-249-433-11	CARBON 22K 5% 1/4W
R828	1-249-433-11	CARBON 22K 5% 1/4W
R829	1-249-433-11	CARBON 22K 5% 1/4W
R830	⚠.1-247-741-11	(717M)...........CARBON 150 5% 1/2W F
R830	⚠.1-247-744-11	(717,818,818M)...CARBON 270 5% 1/2W F
R831	1-249-439-11	CARBON 68K 5% 1/4W
R832	1-249-430-11	CARBON 12K 5% 1/4W
R833	1-249-413-11	CARBON 470 5% 1/4W
R834	1-249-429-11	CARBON 10K 5% 1/4W
R835	1-249-414-11	CARBON 560 5% 1/4W
R836	1-249-441-11	CARBON 100K 5% 1/4W
R837	1-247-903-00	CARBON 1M 5% 1/4W
R851	1-249-417-11	CARBON 1K 5% 1/4W
R852	1-249-438-11	CARBON 56K 5% 1/4W
R853	1-249-438-11	CARBON 56K 5% 1/4W
R854	1-249-414-11	CARBON 560 5% 1/4W
R855	1-249-438-11	CARBON 56K 5% 1/4W
R856	1-247-756-11	CARBON 2.2K 5% 1/2W
R857	1-247-756-11	CARBON 2.2K 5% 1/2W
R858	1-249-429-11	CARBON 10K 5% 1/4W
R859	⚠.1-247-727-11	CARBON 10 5% 1/2W F
R860	1-249-437-11	CARBON 47K 5% 1/4W
R861	1-217-151-00	METAL PLATE 0.22 10% 2W
R862	⚠.1-212-881-11	FUSIBLE 100 5% 1/4W F
R901	1-249-427-11	(717M)...........CARBON 6.8K 5% 1/4W
R901	1-249-429-11	(717,818,818M)...CARBON 10K 5% 1/4W
R902	1-249-425-11	CARBON 4.7K 5% 1/4W
R904	⚠.1-247-741-11	CARBON 150 5% 1/2W F
R905	1-249-429-11	CARBON 10K 5% 1/4W

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Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description
R906	1-249-429-11	CARBON 10K 5% 1/4W
R907	1-249-432-11	CARBON 18K 5% 1/4W
R908	⚠.1-247-750-11	(717M)...........CARBON 680 5% 1/2W F
R908	⚠.1-247-751-11	(717,818,818M)...CARBON 820 5% 1/2W F
R909	⚠.1-247-750-11	(717M)...........CARBON 680 5% 1/2W F
R909	⚠.1-247-751-11	(717,818,818M)...CARBON 820 5% 1/2W F
R910	⚠.1-247-727-11	(WG,IT).....CARBON 10 5% 1/2W F
R911	⚠.1-247-727-11	(WG,IT).....CARBON 10 5% 1/2W F
R912	⚠.1-202-725-00	(US,Canadian)...SOLID 3.3M 10% 1/2W
RV301	1-238-457-11	RES, VAR, CARBON 250K/250K (100Hz)
RV302	1-238-457-11	RES, VAR, CARBON 250K/250K (400Hz)
RV303	1-238-457-11	RES, VAR, CARBON 250K/250K (1kHz)
RV304	1-238-457-11	RES, VAR, CARBON 250K/250K (4kHz)
RV305	1-238-457-11	RES, VAR, CARBON 250K/250K (12kHz)
RV306	1-238-491-11	RES, VAR, CARBON 500K/500K (DBFB LEVEL) (SAT LEVEL)
RV307	1-238-459-11	RES, VAR, CARBON 100K (BALANCE)
RV308	1-238-458-11	RES, VAR, CARBON 50K (MIC LEVEL)
RV309	1-237-884-11	RES, VAR, CARBON 100K/100K (VOLUME)
RY801	1-515-503-00	RELAY
RY901	1-515-516-00	RELAY
S401	1-554-303-21	SWITCH, KEY BOARD (POWER)
S402	1-554-303-21	SWITCH, KEY BOARD (DBFB/SAT)
S403	1-554-303-21	SWITCH, KEY BOARD (PHONO/AUX)
S404	1-554-303-21	SWITCH, KEY BOARD (TUNER)
S405	1-554-303-21	SWITCH, KEY BOARD (CD)
S406	1-554-303-21	SWITCH, KEY BOARD (TAPE)
S407	1-554-303-21	SWITCH, KEY BOARD (EQUALIZATION)
S901	⚠.1-571-437-11	(E,Saudi Arabia)...SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR)
TB901	1-536-705-00	TERMINAL BOARD (SP)(SPEAKER)
X101	1-577-358-21	VIBRATOR, CERAMIC 4MHz

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